THE

physical therapy

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Evaluation of Strength and Motor Development in Infants – ZAUSMER

Hydrotherapy with Respiratory Poliomyelitis Patients: A Preliminary Report – ZIMMERMAN and LYON

The Role of Nonprofessional Assistants: A Survey of Physical Therapy Departments in California – CURRY

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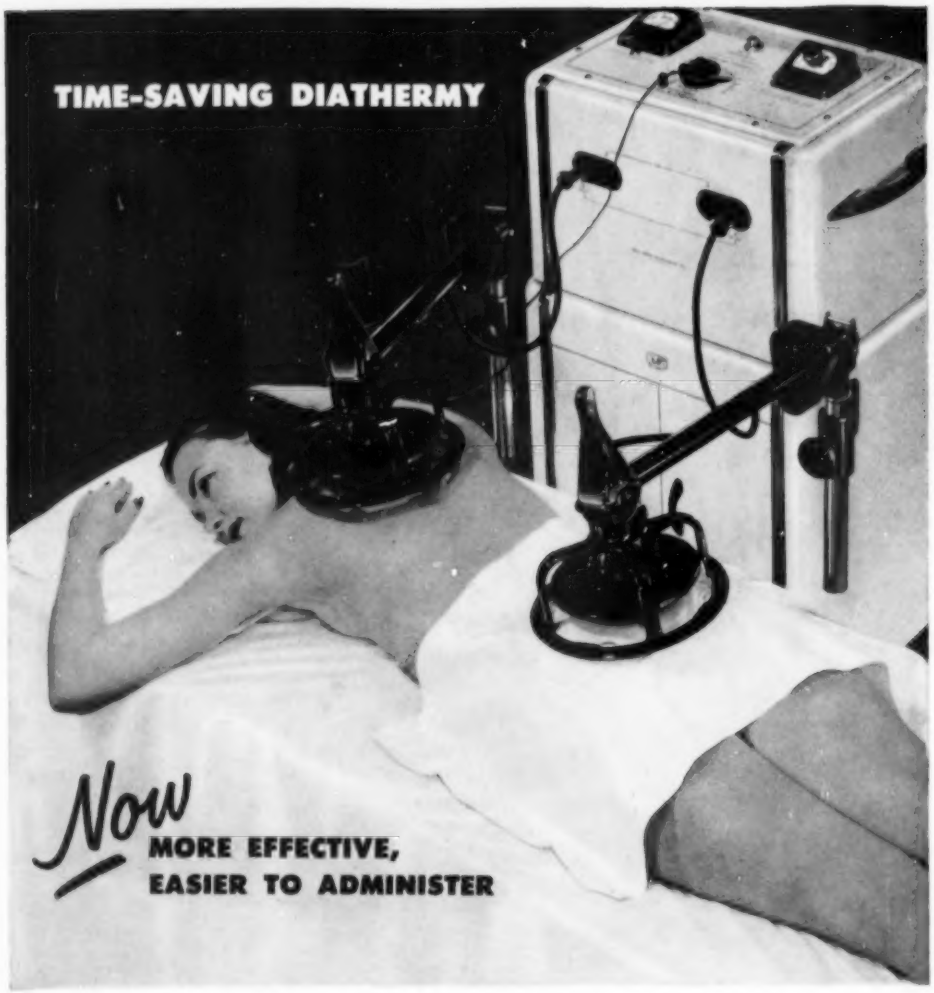

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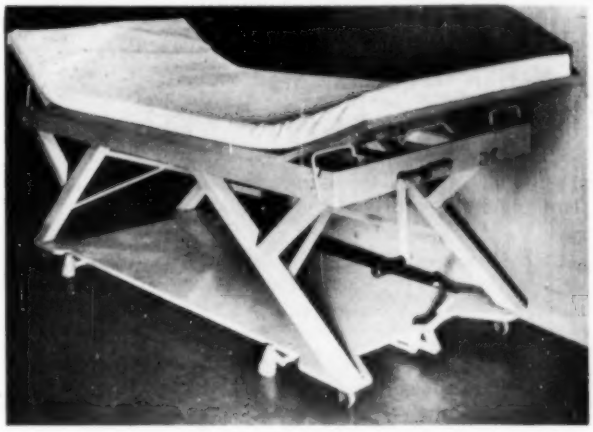

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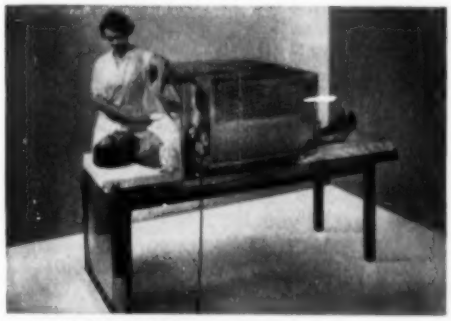

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The Physical Therapy Review

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Vol. 33 **November 1953** **Number 11**

Evaluation of Strength and Motor Development in Infants

Part I

Elizabeth Zausmer, M.S.

Every physical therapist when giving a muscle examination or when trying to evaluate motor development in babies and young children has come to realize that on such occasions tests and measures used for adults or older children can rarely be applied with sure success to the infant. It is often impossible to make babies perform certain voluntary motions, particularly when the child reacts negatively toward new and strange surroundings, is upset, will not play with toys, and is generally frightened. In many such instances, it is difficult to elicit any movement from the child.

When this occurs, the physical therapist who is expected to give a reliable analysis of the baby's motor performance and muscle function must seek different or adaptable technics and methods. This report presents some of the methods which have been successfully applied in the testing of many infants. The same basic principles which are generally used in muscle testing, such as motion against gravity and resistance, are adhered to, but the tests are adapted to the infant's capacities and limitations. Reactions are interpreted in terms of the infant's behavior at various age levels.

The evaluation of abnormal patterns of development must be predicated upon a basic understanding of the normal processes of growth and development. Fortunately, there is a vast amount of excellent material available on the subject of normal motor development by such authorities as Gesell, Shirley, McGraw, and others. These sources have been used in this study with the intention of giving (1) a graphic description of the mechanics of normal motor behavior; (2) an analysis of this behavior from the point of view of muscle function; (3) a contrast between supposedly normal motor patterns and other types of motor behavior which are considered abnormal.

Surprisingly little detailed description of abnormal motor development in infancy can be found in the literature, although there is no lack of specific data dealing with some aspects of normal motor development such as creeping, sitting, and walking. These activities are primarily discussed from a maturational and psychological point of view and very little reference is made to the

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Part II of this article will appear in the December Issue.

anatomical, neurological, and kinesiological aspects. Thus the need for a more detailed description and analysis of abnormal motor behavior in infancy becomes apparent. It is hoped that this paper will accomplish two things; one, provide help to those who lack experience in evaluating small children; and two, stimulate the experienced to further research in this field.

The first part of the study presents developmental principles and theories which form the basis for the understanding of motor function in infancy; the second part deals with the clinical and practical aspects of motor behavior and with technics of muscle testing.

Norms or Trends of Development

In order to determine whether an infant develops normally or not, we will have to consider first what is meant by "normal" development. "Normal" according to Webster means "conforming to a type, standard, or regular form." However, no such "type," "standard," or "regular form" exists in the pattern of human development. Although standards for weight, height, mental age, and motor performance are still widely used to compare a child's status with that of a group of the same age, it is now generally realized that each child has his own individual growth pattern which is more significant than comparison with an average or group. It is important to know how a child compares in motor achievement with other children of the same age, but it is even more important to know the course of his own individual motor development, its direction and rate of progress. Therefore, a knowledge of the basic pattern of motor behavior has to be combined with the observation of the *trend* of development in order to appraise the infant's development in health as well as in disease.

Certain types of diseases of the central nervous system such as cerebral paralysis, brain tumor, and hydrocephalus almost always retard and frequently injure permanently a child's motor development. Other disturbances caused by nutritional and metabolic deficiencies, peripheral nerve injuries, or infectious diseases may only temporarily retard motor development. Lack of experience, such as arises from blindness or deafness, certainly may delay a child's development and insufficient outside stimulation is often the cause of failure to perform motor activities expected at a certain age level.

Thus, retardation of some degree is often less important than the course of development. Careful observation and comparison of the rate of acceleration or deceleration of progress during a given period of time yields much information in regard to the infant's future development.

Sequence of Development

Although individual trends and patterns in the child's development are of utmost importance, it cannot be denied that motor development proceeds in an orderly, integrated way; but it is not necessarily along the same path that another child takes. Gesell states: "Babies pass through similar stages of growth, but not on the same time table. Each child has his own growth schedule even though the order of stages was much alike. . . ."

There is not only a *sequence* in motor development but there is also a definite *continuity*. Just as in a chain, one link connects with the next and if one is broken the connection is disturbed, so one activity leads to the next, although at first they may have seemed unrelated.

One pattern of development can almost uniformly be observed in any child: Motor control and development start with the head, progress to arms, hands, and trunk successively, and only later include the lower extremities. This cephalocaudal (head to tail) development, occurring in animals and humans alike, is the reason that sucking is one of the first activities, that the legs at birth are shorter than the arms, and that the infant while already engaging in several activities of the upper extremities, does not stand or walk until a few months later. A disturbance in this primary pattern of development is always abnormal.

In the transverse plane, development progresses from the central to the peripheral segments and in the limbs proximo-distally. Motor control starts at the larger muscle groups and progresses to the smaller muscle groups which execute finer and more skilled movements. This principle will be illustrated later in the discussion of prehensory movements, manipulations, and locomotion.

Reflex Movements

Reflex movements take place in response to manipulations, to stretching of muscles, to change in position, to restrictions of normal motions, to application of different tactile stimuli such as heat, cold, pressure, tickling, and stroking and as a reaction to light and sound. A number of investigators have studied the reactions of infants to such stimuli and their findings have been reported in the medical and psychological literature. Most of these tests have been applied

for diagnostic purposes in neurologic disorders. No evidence was found in the literature that such stimuli had been used methodically to elicit, observe, and evaluate motion and motor behavior that could not be obtained by other means; nor was there any interpretation of the findings in terms of participating muscles and their relative strength.

It could be argued that motions obtained by such stimuli cannot be considered comparable to or equal to voluntary motion in either strength or character. They do, however, fulfill one of the objectives of a muscle examination; namely, determination of the presence of and degree of contractile strength in a muscle or muscle group. If we make it clear in the record that reflex stimulation has been used and describe the muscle contractions thus obtained, we have discharged our responsibility. Interpretation of variations in response from different stimuli is of the utmost importance, but it is the function of the physician.

Moro Reflex: In 1918, Moro described a reflex which he found almost uniformly present during the first few days of life and frequently up to the age of three months. The infant is placed on his back on a springy surface. When this surface is struck on either side of him, he will spread his arms apart and then bring them together to form a bow while the legs engage in similar movements. The reflex also has been observed in the form of a rapid rhythmic shaking or extension of arms and legs which will last for a fleeting movement, after which the infant relaxes spontaneously. Tapping the child on the abdomen, blowing on his face, and extending both legs suddenly and simultaneously have brought about similar reactions. There seems to be little doubt that cerebral pathology defers the disappearance of this reaction. If it persists after the age of six months, it is regarded as a sign of cerebral or pyramidal tract injury.

Although there is some difference of opinion in regard to the interpretation of this reflex, it can be used occasionally to observe function of the extremities and to obtain an estimate of the pattern and strength of the participating muscle groups.

The Tonic Neck Reflex (TNR) has a more practical application in regard to diagnosis and in the observation of body movements. Originally observed by Magnus in decerebrate animals, it was later adapted for study in infants. It has been described as a tendency to bring the body into a position corresponding to the position of the head. When the infant's head is turned to one side, the opposite arm is flexed at the elbow, fully abducted, and externally rotated. The arm toward which the face is turned rests in an extended position at the side of the body or somewhat abducted. If the legs participate, the leg on the side toward which the face is turned is more flexed and externally rotated than the other leg.

From a point of view of muscle testing, it is not only important to recognize this characteristic head position as normal during the early stage of life but also to note its presence at an age when it should no longer exist. Although not frequently, the TNR has sometimes been used in eliciting motions in infants who did not move their arms or legs very actively; they would show a change in position when the face was turned from one side to the other.

The TNR is almost uniformly present during the first four months of life, then gradually disappears. It is now generally agreed that its presence after the age of six months is indicative of a lesion in the central nervous system, particularly in the extrapyramidal tracts.

It is of interest that Gesell's clinical studies support the belief that there is a relationship between TNR and future handedness. An infant who shows a predominately left TNR during the first 12 weeks of life is almost always by nature left-handed.

Other reflex patterns such as grasping or the Babinski reflex have been used in this study as additional methods of stimulation and technics to elicit body movements. They will be described in connection with the testing of various muscle groups in the second part of this article.

RANGE OF MOTION IN JOINTS

One of the most important, and fortunately always available, means of evaluating motor function lies in the observation of the range of motion in an extremity. No data seems to exist on what constitutes normal or average range of joint motion at various age levels, but certainly, in infancy a full range of motion which can be compared to the normal range for adults should exist in all joints. Children frequently show markedly increased flexibility which is normal for them but could easily be mistaken for an abnormal range of motion or for deformity. On the other hand, restriction of motion may be due to postural attitudes found at certain age levels and must be distinguished from true limitation. A normal baby who is not old enough yet to reach out for an object and, therefore, keeps his elbows flexed most of the time, certainly differs from the baby who keeps his

elbows flexed at all times because of nonfunctioning elbow extensors. While the former possesses a complete passive range of elbow extension, the latter may have a limited range of extension due to secondary changes of muscle tone or spasticity in the flexor group.

In the course of this study, the range of motion of supposedly normal infants was recorded as well as the limitations found in those with established malfunction. These findings will be presented in the second part of the paper in the discussion of individual body segments and their function.

MATURATION AND LEARNING

There has always been a controversy between different schools of psychology whether growth and development occur primarily because of genetic maturation or because of environmental stimulation.

Two cases may illustrate how problems of such nature are encountered almost daily in our work.

1. An eight-month-old infant has been immobilized in a plaster jacket for the last four months. Now the cast has been removed. Can the baby be expected to sit up alone like other children his age? Will he have to go through the same preliminary stages of rolling over and creeping which he missed during his stage of immobilization? How long should it take him to catch up with other children his age?

2. A girl, now two years old, had to be kept off her feet until the age of eighteen months due to a congenital hip condition which, at present, is well corrected. She still has not started to walk. Is it normal that she only creeps and crawls now? Will it be necessary to show her how to walk?

It would be beyond the scope of this paper to take up all the aspects of this controversial question of maturation versus learning. Therefore, only a few of the theories advanced by authorities in this field are summarized here in the hope that they may contribute to the understanding of motor development in handicapped infants.

Gesell has supplied the term "maturation" to child psychology. Largely based on the result of practical experiments on twins, he came to the conclusion that changes can be observed in a growing infant which cannot be explained in terms of learning or conditioning theories. "The nervous system grows according to its own intricate pattern and thereby establishes the primary forms of behavior. These forms are not determined by stimulation from the outside world. Experiences have nothing specifically to do with them."

Other psychologists, in contrast, believe that there exists such close interrelationship between the two processes that learning is always accompanied by anatomical changes in the central nervous system. It has also been claimed that learning occurs prior to birth, that the early reflex motor activities in infancy actually are the results of external stimuli while in utero and that these intra-uterine motions have become learned activities at the time of birth. Kingsley goes even so far as to state that "there is probably no learning activity that does not involve the muscles, for the action of muscles also plays an important though less universally recognized part in perceiving, remembering, imagining, comprehending, and thinking."

The problem of maturation and learning is closely related to the problem of myelinization of nerves. In this field of research, new and startling ideas have come up in recent years. It is generally agreed that myelinization of the central nervous system has to be completed before it can function in the establishment of neuromuscular skills. Nerve cells present at birth cannot function before they have matured; muscular tissues mature only later. But while it was formerly thought that function was directly dependent upon myelinization and that a nerve without myelinization could not transmit an impulse, more recent research has offered striking evidence that there exists an interaction of these two processes and that myelinization actually occurs by usage. Experiments on decorticate animals showed that myelinization results from and increases with the use of nervous tissue; after the cortex had been removed in these animals, one eye was covered while the other remained open during the recovery period; myelinization occurred more rapidly in the eye that was being used.

Another interesting field of research deals with the question of whether a transfer of learning occurs from one extremity to the other. Experiments testing the effect of practice on a given activity with the right hand have shown interesting results upon later learning of the same activity with the left hand. After a practice period for the right and the left hand, the practice was continued by the right hand only; the left hand, without further training, nevertheless continued to improve. Other experiments, which measured transfer from hand to foot and vice versa, also

suggest that there is a saving in the time required to learn an activity with one extremity if the activity had been practiced previously by another extremity.

Experience accumulated during the last World War, when amputees were trained in occupational and recreational activities with their unimpaired limbs first, showed that they later learned the identical activities with their protheses better and in a shorter time than they did without previous training.

From a clinical and practical point of view, the application of the knowledge gained in such experimental research may well be utilized in the training and reeducation of handicapped children. This fact can easily be observed in a hospital where children are not only confined to bed for longer periods of time, but, in addition, may have to be restrained in their physical activities. When later restored to their freedom of movement, these infants do not always engage in motor activities which are expected of them at their chronological age although obviously maturation took place during this period of confinement. They frequently have to go through the stages of motor development which they had missed; however, they may advance now at a somewhat faster rate.

An adult who has not engaged in a certain activity for some time may lose his skill in performing it; but with all his motor functions once fully developed, he relearns it quickly. On the other hand, a child's impairment not only handicaps him at a given time in the performance of a task, but it also retards further learning and the acquisition of new skills and motor activities. Previous growth and previous experience are inseparably intertwined with the process of learning. Retardation thus may accumulate unless steps are taken to ascertain that the child uses fully his *capacities* for learning by engaging in activities which are appropriate to his maturational level. Motor activities may have to be adapted to the handicapped child's needs and to his ability to use them.

There should be special emphasis on activities which afford experiences of a sensory-motor nature. To give but a few suggestions: If a baby cannot use his arms or hands to grasp objects, he may be encouraged to touch, manipulate, and explore them with other parts of his body, such as his face, his feet, or toes. If he is not allowed to bear weight on his legs, he should at least be given the opportunity to kick his legs, to roll over, to crawl, and to creep. The result will be not only an increase in strength and function in the part of the body thus exercised directly, but also a transfer of learning from the exercised to the nonexercised parts of the body. Thus the eight-month-old infant, previously mentioned, possibly was not sufficiently encouraged to use the extremities which were not immobilized. This baby has missed some important phases in his motor development and, in accordance with this concept, could not be expected to sit up at the usual age. The second child, who is creeping at the age of two years, should be encouraged in this activity with the assumption that she will progress to walking at a rate commensurate with her individual developmental pattern.

In summary, then, it may be said that it is our belief that both maturation and environmental stimulation are important factors in normal development and that when disease impairs maturation, particular attention should be given to providing proper environmental stimulation so that maximal motor capacities may be obtained.

THE NEWBORN BABY

During the first weeks of life, the newborn baby still assumes predominately the intra-uterine position. Some of the characteristics of a newborn's posture have been described as follows: The baby lies with his face turned to one side and resists strongly any attempt to change this position of the head. The head is usually turned to one side when the infant is asleep, but acquires a midline position when he is crying. The arms and legs are slightly flexed. Full extension of the elbows, knees, and hips is often difficult, probably because the intra-uterine position is one of flexion at these joints. Flexion at the hips will be most marked in infants born by breech, and in these infants, complete extension at the hips will be nearly impossible in the first three or four days. There is normally slight outward rotation of the legs at the hips and the legs tend to assume the same position both when the infant is awake and when he is asleep. This position is generally outgrown at the age of three to four weeks. At this age, the tonus of the musculature is more relaxed, and the infant's legs are held in a more extended position at the hips and at the knees. In pathological conditions, however, the typical neonatal posture persists; frequently, it is an early diagnostic sign of neurological or orthopedic defect. It is, therefore, important to examine the infant's joints and muscles by taking his extremities through a full range of motion.

A normal healthy infant engages in very strong active movements, vigorously kicks arms and legs around, and resists any attempt to restrain

his freedom of motion. Kicking movements are quite stereotyped with both legs usually moving in the same direction. Quite frequently, one leg leads, the other follows. The whole leg participates in the kicking movement as one unit with hip, knee, and foot moving together. These movements should not be mistaken for voluntary, purposeful movements; they are uncoordinated random and often reflex movements of a subcortical nature. Only later, approximately at the age of three months, do the various segments of the upper and lower extremities move as distinctly separate units. A baby who lies motionless or moves his arms and legs feebly definitely presents an abnormal motor pattern.

The Head

One of the outstanding differences between the infant and the adult is the size of the baby's head in relation to the rest of the body. While the size of the head of an adult is only one-seventh of his total size, a baby's head is one-fourth of his total size and usually almost as wide as his chest.

When at rest, a baby usually lies with his face turned to one side due to the previously described Tonic Neck Reflex, but the healthy baby is at all times able to turn his head freely and actively while lying on his back and shows no preference for either side. Therefore, persistent rotation of the face to one side can be considered abnormal, particularly if it is accompanied by lateral flexion of the head, a position characteristic of torticollis. Certainly, the passive range of rotation and flexion of the head should be equal on both sides; tightness or contracture or increased range of motion on one side as compared to the other side are always abnormal.

The very young infant lifts his head first from the prone position. This movement cannot be considered a voluntary one during the first few weeks of life but is purely reflex, most likely due to the instinctive urge to free the nose for breathing. The fact, however, that the infant is able to lift his head at all in the prone position shows that there is, in early infancy, a definite predominance of the posterior neck muscles as compared to the anterior neck muscles.

Babies differ widely not only in regard to the age at which they start to lift the head from the prone position but also in the execution of this movement. Some start by lifting it up for a fleeting moment only and gradually hold it up for longer periods of time. The following table of the stages of development in lifting the head represent average age levels at which these motions were observed in normal infants:

Lifting the Head from the Prone Position

Lifting momentarily a very few degrees	2 to 4 weeks
Lifting momentarily through full range	8 weeks
Sustained lifting	12 weeks

When a normal baby is lifted from the prone position, he will lift his head slightly above the horizontal level; when lowered to the surface, he lifts his head momentarily, turning his face before resting it on the surface. An infant who makes no attempt to do this or who tries to lift but cannot do so, can be considered to have impaired function of the posterior neck musculature.

A similar position can be used to test posterior neck and back muscles simultaneously. Landau has described a reflex movement which is obtained by placing a hand under the infant's abdomen and then lifting him into the air. He found that there occurred a tonic extension of neck and back, and, frequently, extension of the legs at the hips. This reaction can be found from the age of 6 to 18 months and sometimes even up to 2 years.

The next stage in the development of neck muscles is reached when the infant can hold his head in a plane with the body while held in a sitting position. Usually, he is able to do this at the age of two to three months.

Observations have shown that lifting the head from the supine position occurs later than all other head movements. The first attempt frequently occurs at about three months of age and usually results in a disturbance of equilibrium; the head wobbles and bobs to the side. At the age of four to six months, a baby can be expected to lift the head freely and voluntarily against gravity when lying on his back. For maintaining this position while looking around, not only muscle strength but also a certain amount of muscle coordination and skill are required; this activity is one of the early manifestations of interest in exploring the outside world. In view of the fact that motor development takes place in a cephalocaudal direction, it is very important to observe how the infant gains control over head motions. Marked retardation or grossly irregular patterns are frequently of great diagnostic importance.

Lifting the head up from the supine position is a preliminary postural adjustment to sitting up. The infant's desire to sit up can be observed by his facial expressions: His chin pulling forward, his mouth open, an anxious expression in his eyes, the baby pulls himself up as soon as any help is offered. However, if his anterior neck

muscles are not sufficiently strong, his head wobbles, falls backward and stays in this position when his trunk is pulled forward to a sitting position. Normally, in the first four to six weeks, the head may sag backward during the *first* 30 to 40 degrees of trunk flexion. During the completion of the movement the healthy baby holds his head up alone in plane with the rest of the body if the head is supported at the start of the motion. At the age of two to three months, the head is lifted in line with the body during the entire arc of trunk flexion. The most advanced stage is reached when the infant lifts his head up first, followed by lifting the shoulders, retraction of the abdominal wall, and pulling himself up to a sitting position.

Rolling of the head, jerky head motions, banging of the head, incoordinated motions of the head are usually due to emotional factors and should be given medical attention.

Hydrotherapy with Respiratory Poliomyelitis Patients

A Preliminary Report

James P. Zimmerman, B.S., and Franklin L. Lyon, B.A.

The value of hydrotherapy procedures in the rehabilitation of the chronic polio patient has long been recognized by leading authorities in the field of physical medicine. Immersion of patients in warm water in the Hubbard tank or similar apparatus serves a dual purpose in the convalescent polio patient's treatment program: first, as a medium for reeducation and assistance to weakened muscles; and second, as a means of applying heat to tight and painful muscles prior to flexibility exercises.

These hydrotherapy treatments have largely been limited to patients with little or no involvement of the muscles of respiration. This means that a large number of patients are excluded from this beneficial medium until the long, often hopeless, task of weaning from the respirator is completed.

Clinical observation in the past has led us to believe that the exclusion of polio "respirator patients" from warm bath therapy is unnecessary. At Children's Hospital this past year a technic was developed for immersion of these patients in the Hubbard tank and the physiological effects of this immersion were studied.

From Children's Hospital, Columbus, Ohio.

PHYSIOLOGY

When the normal human body is immersed in water (36 to 40C. or 97 to 104F.) for a period of 5 to 30 minutes, the following reactions occur — peripheral vasodilatation, muscular relaxation, lowered blood pressure, increased pulse and respiratory rate, diminished depth of respiration, diminished body heat production, and an emptying of body blood reservoirs. It must be remembered that these reactions may be preceded by a very short period of peripheral vasoconstriction and sensory stimulation as occurs in the body reaction to cold stimuli. This period of sensory stimulation will be followed quickly by general relaxation and a feeling of well-being.

In studying the effect of immersion in warm water on the respirator patient one must remember that the circulatory and respiratory disturbances of the respirator patient are complex and far-reaching. The most obvious and most important disturbance is the impairment of respiratory function. This impairment is accompanied by a constant threat of respiratory infection and subsequent mucous obstruction in the respiratory tract.

The long inactivity of the respirator patient

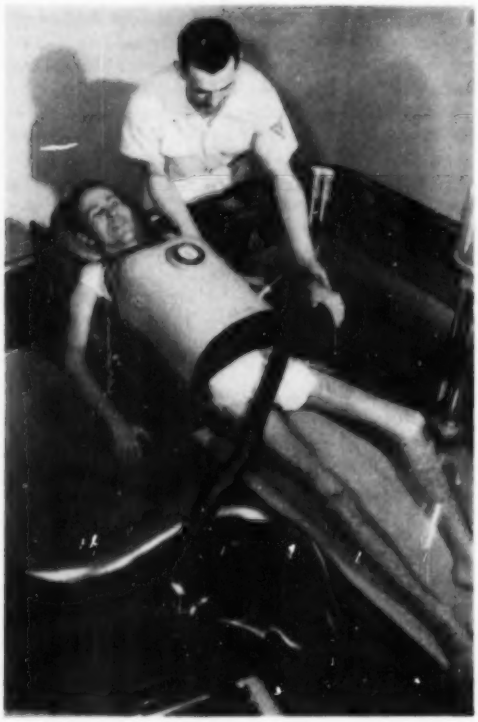

Figure 1. Use of chest respirator on patient while immersed in Hubbard tank allows physical therapist to give reeducation and assistive-type exercises in water.

and the loss of the weight-bearing capacity cause a decalcification of the skeletal system. There is a decrease in peripheral circulation and a lowered rate of venous return resulting largely from the loss of active muscle function. A large volume of blood accumulates in the liver, spleen, and other visceral organs. There is a marked vasomotor instability. An upset of calcium and phosphorus balance in the blood stream occurs, thus facilitating the occurrence of renal calculi. The lowered pressure of venous return causes a lowered cardiac stroke volume. These circulatory and respiratory disturbances combine with many other problems, including loss of appetite, marked muscular atrophy, and severe emotional distresses, to make the respirator patient a unique and delicate rehabilitation problem.

Therefore, in our clinical studies of the effect of warm water immersion on the respirator patient we measured both respiratory and circulatory reactions to see what variation from normal was shown by the respirator patient.

METHOD

For our studies of the circulation and respiration rate of the respirator patient in warm water we chose five patients, all of whom had extensive skeletal and respiratory muscle paralysis. The ages of these patients were 17, 19, 23, 26, and 34. All were completely respirator dependent at one time. At the time of the study one patient was completely respirator free except for occasional rocking bed assistance, three were respirator free four to eight hours daily, and one patient was respirator free only two to three minutes. The amount of time that had elapsed from the onset of the disease varied from five and a half to seven months. These patients had been receiving warm bath therapy from two weeks to two and a half months before the study.

For our respiratory studies we chose four patients. In the graph (Figure 2) patient A represents a 20 year old male who is completely respirator free, patient B, an 18 year old female using occasional rocking bed assistance at the time of the study, patient C, a 26 year old male using six hours rocking bed time daily, and patient D a 23 year old female using the respirator 14 hours daily and the rocking bed 4 hours daily. We were unable to use the same group of patients for these respiratory studies that were used for the circulatory studies since there were emotional and physical difficulties with certain patients which we felt would influence the results.

For controls to the circulatory and respiratory rate studies we selected four polio patients with generalized weakness but no respiratory involvement. The age of these patients ranged from 10 to 17 years. For the controls for the ventilation studies (Figure 2) two normal persons were used.

The apparatus used included a Hubbard tank for immersing the patient, a Technicon-Huxley chest respirator (See figure 1), a standard clinical oral thermometer, a standard sphygmomanometer, a McKesson skin thermocouple, and a Sanborn Model 10 Metabulator for our respiratory studies.

The water temperature for the studies ranged from 37.4 to 38.3 C. (99.5 to 101 F.). The average room temperature was 27.0 C. (80 F.) with a range of 25.5 to 28.3 C. The length of time of immersion varied from 12 to 20 minutes, since the regular clinical program was carried out insofar as possible in all cases.

The pulse rate, blood pressure, and respiration rate were measured three times — immediately before immersion, after immersion for ten minutes, and ten minutes after removal from the

water. Skin and oral temperature recordings were taken before immersion, immediately after immersion, ten minutes after immersion, immediately after removal from the water, ten minutes after removal, and one hour after removal. The respiratory studies with the metabulator were taken (I) before immersion, (II) immediately after immersion, (III) ten minutes after immersion, and (IV) ten minutes after removal from the water. Point (V) on the graph represents the results of control studies done at other times on the same patients. The control studies were taken for (I), (II), and (III) as mentioned above.

RESULTS

Ten minutes after immersion the pulse rate of the respirator patients varied from a drop of 12 to an increase of 16 beats per minute. In only 2 out of 12 measurements was there a decrease. The average was an increase of 2.5 beats per minute. From the measurement ten minutes after immersion to ten minutes after removal there was an average recording of 1.5 beats per minute decrease. The range was from a decrease of 16 to an increase of 24 beats per minute. Four of the 12 recordings were increases.

The systolic pressure showed a decrease in 8 of 12 measurements, no change in one, and very slight increases in two cases ten minutes after immersion. One recording was an increase of 20 mm. Hg. The diastolic pressure changed very slightly at this time. In five recordings there was a decrease of 2 to 8 mm. Hg, in five recordings there was no change, and in two recordings there was an increase of 2 and 5 mm. Hg respectively.

Ten minutes after removal from the water there was an increase of systolic pressure in 8 of 12 measurements. The range was from a decrease of 10 to an increase of 20 mm. Hg. The average systolic change was 4.8 mm. Hg increase. At the same time the diastolic pressure increased in five recordings, decreased in three, and showed no change in four. The range was from a decrease of 15 mm. to an increase of 8 mm. Hg. The average diastolic change was 0.3 mm. Hg increase.

The skin temperature recordings of the respirator patients showed an average increase of 2.5 C. approximately 30 seconds after immersion. Two recordings showed a very slight decrease in temperature. The range was from a decrease of 1.0 C. to an increase of 7.7 C. After ten minutes in the water all measurements showed an increase above the recordings prior to immersion. The average increase at this time was 3.3 C., and the range from an increase of 0.2 C. to 8.9 C.

Upon removal from the water all measurements except one showed a decrease in skin temperature. The decrease in temperature ranged from 0.3 to 2.2 C. with an average decrease of 1.0 C. Ten minutes after removal nine recordings showed a continued decrease while three showed slight increases. The range was from an increase of 1.6 C. to a decrease of 4.0 C. over the reading following removal. The average was a 1.0 C. decrease. The total average decrease from the measurement ten minutes after immersion to ten minutes after removal was 2.0 C.

Although we took measurements one hour after removal from the water, these recordings were insignificant for they varied according to the patient's environment and activity.

The oral temperature of the respirator patients increased an average of 0.3 C. ten minutes after immersion. Ten minutes after removal there were eight recordings of decreased oral temperature, seven recordings of increases, and three recordings of no change. The range was from a decrease of 0.7 C. to an increase of 0.4 C. with an average of 0.07 C. decrease.

The measurements of respiration rate taken on respirator patients not using the chest respirator ten minutes after immersion gave six measuremenis of increased rate, three of no change, and one of decreased rate. The range was from a decrease of 4 to an increase of 14 respirations per minutes. Ten minutes after removal eight recordings showed a decrease and two an increase with a range from an increase of 2 to a decrease of 10 respirations per minute. The average at this time was a decrease of 3 respirations per minute.

The measurements of nonrespirator polio patients gave uniform rises in respiration rate and pulse rate and decreases in blood pressure while immersed and decline in respiration and pulse rate and increase of blood pressure after removal from the water.

The skin temperature recordings on nonrespirator patients gave an average increase of 0.7 C. upon immersion, a continued rise after ten minutes immersion to an average total increase of 1.7 C., and a decrease in all but one case upon removal. This decrease averaged 1.3 C. Ten minutes after removal there was an average increase in skin temperature of 0.4 C. over the average recording taken upon removal from the water.

The oral temperature of all nonrespirator patients increased an average of 0.4 C. ten minutes after immersion and decreased an average of 0.25 C. ten minutes after removal.

GRAPH

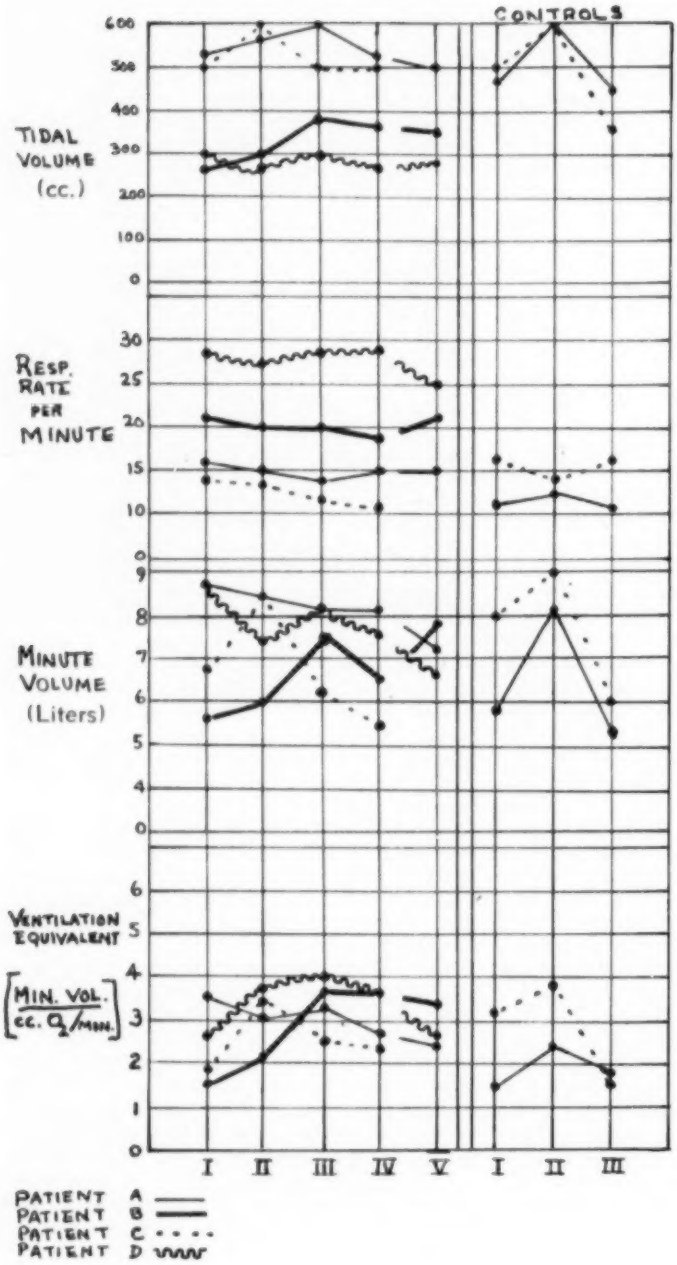

Figure 2. Graph shows relative respiratory findings of four respirator patients while immersed in warm water (left) as compared to results obtained on two normal persons under the same conditions (right).

The studies of tidal volume, respiration rate, minute volume, and the ventilation equivalent are recorded and charted in figure 2.

DISCUSSION

Before immersing the respirator patient in warm water certain precautions obviously are necessary. Proper ventilation must be maintained, and respiratory infection and mucous clotting in the respiratory tract prevented. It has been our experience that patients able to stay respirator-free six to eight hours daily tolerated immersion well. Those unable to breathe freely that length of time needed chest respirator assistance. The use of the chest respirator in the Hubbard tank does not allow full body immersion since the respirator must be kept out of the water, but hips, legs and arms are well submerged. Careful observation for distress signs must be maintained on those patients not using the respirator while immersed. It is wise to have the patient well rested before treatment is started. At least one assistive person should be on hand at all times to aid the therapist in case of an emergency.

Judicious handling of the patient following his removal from the water is important to prevent chilling. The patient should be dried quickly, kept warm, and observed constantly. A well trained physical therapist who is alert to these problems should be present at all times during and after the treatment.

The problem of mucus is facilitated by the moisture of the air above the water. This seems to moisten the respiratory tract and ease mucus production during immersion. For a patient with a great deal of mucus, it might still be wise to have an aspirator ready for emergency. It is significant that of 18 respirator patients who received warm bath therapy in our department only one developed respiratory infection which might possibly have been caused by the immersion, although this is doubtful, and none developed any difficulty with mucus.

The results of the pulse rate, blood pressure, and respiration rate measurements on respirator patients all seem to be well within normal limits. There is some variation in the skin and oral temperature recordings between the respirator and nonrespirator patients. Although there is little difference during immersion, after removal the skin temperature of the respirator patients drops rapidly, while the skin temperature of the nonrespirator patients drops rapidly at first and then rises slightly. At the same time nearly half of the respirator patients' recordings show an increase in oral temperature, while all the nonrespirator patients show a uniform decline. We feel this variation to be due largely to two factors:

1. Greater loss of skeletal muscle of the respirator patients causing a decrease in blood flow and heat generation.
2. A marked degree of vasomotor instability in the respirator patients causing a swift decrease in peripheral circulation but maintaining an elevated body temperature in many cases.

The respiratory studies shown in figure 2 give varied results, but this might be expected since the degree of impairment varied considerably. In these studies all four recordings showed a decrease in respiratory rate from the time before immersion to ten minutes after immersion, whereas the studies of respiration rate without the presence of the metabulator showed an average increase of 4 respirations per minute. We felt this discrepancy resulted from the presence of the metabulator mouthpiece and the clamping off of the nasal passage. If these alien objects did effect the respiration rate to any great extent, they would also alter the minute volume findings and the ventilation equivalent. This discrepancy leads us to question the accuracy of these respiratory studies, but we still feel they are significant enough to report.

The immersion of these polio respirator patients allows the physical therapist to give trace and poor muscles gravity eliminated exercises more effectively. The buoyancy and warmth of the water relaxes the patient and apparently eases the breathing somewhat by releasing some of the pressure on the rib cage. The increase in peripheral circulation that occurs helps in reducing soreness and in preventing pressure areas from becoming decubiti.

The chief benefit of warm water immersion, however, appears to be a psychological one. A survey of 14 patients 15 years old or older who received this therapy in our physical medicine department showed that all felt they were benefited by it. Eight felt respiration was easier while immersed and for a while after removal; three felt respiration was about the same while immersed and slightly easier after removal; one felt respiration was more difficult in the water but much easier afterwards; two had no opinion about respiratory ease. Nearly all of these patients noted an increase in appetite after warm bath therapy was started. This survey is indicative of the tremendous emotional boost that was given the respirator patient after receiving warm water immersion in the Hubbard tank.

CONCLUSIONS

While there were variations in the circulatory and respiratory recordings of the respirator patients and the nonrespirator patients, these variations do not appear to contraindicate warm water immersion in any way. The heat regulating mechanism of the respirator patients studied appeared to be completely intact.

In this preliminary study we realize many questions still are not conclusively answered but at this time we believe that the benefits of warm bath therapy far outweigh the dangers.

Warm water immersion apparently has a definite place in the rehabilitation program of many chronic polio respirator patients along with the rocking bed, the standing bed or tilt table for weight bearing activities, wheel chair activities, and occupational therapy. The emotional uplift which comes from the feeling that he is receiving a treatment program as full as that of the less seriously involved patient is a great aid in achieving the limited goals set for the respirator patient.

SUMMARY

This study was understaken to determine the effect of warm bath therapy on polio respirator patients. The physiology of warm bath therapy and the special problems of respirator patients are reviewed. Respiratory and circulatory recordings of these patients are presented and the results compared with nonrespirator patients.

The results of these studies on polio respirator patients show no gross physiological abnormalities. The skin and oral temperatures show some variation from the controls. This variation occurred after removal from the water and may be explained largely by vasomotor instability.

Certain definite precautions are necessary in immersing respirator patients, including the use of a chest respirator on those patients who still have serious respiratory involvement.

In this preliminary study the findings indicate that with proper care there are no contraindications to warm water immersion for respirator patients unless there are complications such as respiratory infection. It is concluded that there are significant physical, psychological, and physiological benefits to be derived from warm water immersion for polio respirator patients.

The authors wish to express their sincere appreciation for the aid, advice and criticism they received from Ralph E. Worden, M.D., Director of Physical Medicine and Rehabilitation, Ohio State University Hospital and Children's Hospital; and Warren Wheeler, M.D., Associate Professor of Pediatrics, Ohio State University Medical School.

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Our Book Reviewers for November

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The Role of Nonprofessional Assistants

A Survey of Physical Therapy Departments in California*

Frank V. Curry, M.A.

The purpose of this paper was to survey the role of nonprofessional assistants in physical therapy departments in California and to discover if there was evidence of a need for more of these assistants. Such a study seemed important because of the critical shortage of qualified physical therapists and because it has been suggested that the more effective utilization of nonprofessional assistants might help alleviate this shortage.

A review of the literature revealed that there were only 6,000 physical therapists in 1952, and the professional organization of this group has estimated that there will be a need for 16,000 by 1960.

Schools are training slightly more than 500 physical therapists a year at present. Efforts to increase this number of qualified personnel have been successful to a degree, but have not been able to meet the increased demand for physical therapy service.

The nursing profession faced with a similar shortage of personnel successfully utilized a large number of nonprofessional assistants. The tremendous contributions of these workers is exemplified by the one million hours of services provided, monthly, by one group alone, and the wide recognition this group received from organizations such as the American College of Surgeons, and other reputable organizations.

Nonprofessional assistants have been utilized in physical therapy departments to some extent. Recently, there has been increased interest in the more effective use of these assistants as one method of relieving the critical shortage of physical therapists. The United States Civil Defense, the American Physical Therapy Association and the Illinois State Chapter of this association have made suggestions regarding these assistants for physical therapy departments, but the Illinois Chapter of the American Physical Therapy Association, it seems, was the only group that actually set up a training program.

A questionnaire was formulated to provide information not available in the literature and was sent to all general hospitals in the state of California having 100 beds or more as listed in the *Journal of the American Medical Association*. There was one questionnaire to be filled out by the head physical therapist and another by the nonprofessional assistants in the physical therapy departments.

The purpose of the head physical therapist's questionnaire was to determine the ratio of nonprofessional assistants to physical therapists in each department, and to discover indications, if these existed, for the greater use of nonprofessional assistants. The purposes of the nonprofessional assistant's questionnaire was to determine the education and special training of the assistants and the way in which they were utilized.

It is well to consider some of the factors which are significant at this point.

One hundred questionnaires were mailed. Fifty-seven questionnaires were returned. Of the hospitals returning questionnaires, 48 or approximately 84 per cent had physical therapy departments and therefore were able to fill out the questionnaires.

The hospitals included in this survey varied greatly in size from 100 to 3,100 beds. As is to be expected, the size of the physical therapy departments also varied greatly, the difference being represented in terms of the number of employees in each department. The smallest department employed one part-time physical therapist as compared to the largest department which employed 16 full-time physical therapists and 14 nonprofessional assistants. The great differences in the sizes of the departments included in the survey were considered desirable because the danger of results reflecting conditions common to any particular sized department was thus minimized. Also, the size of the departments could be compared to discover trends which might be associated with a particular size.

One hundred and fifty-three full-time and three part-time physical therapists were employed by the departments surveyed.

Approximately one half of the departments returning questionnaires employed nonprofessional assistants. A total of 57 nonprofessional assistants were employed by these departments. These

* Condensation of a thesis written in partial fulfillment of the requirements for the degree of Master of Arts in Physical Therapy at the University of Southern California.

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assistants fell into three groups. Four were employed less than one-half time; four were employed over one-half time; and 49 were employed on a full-time basis.

From the information obtained, it is possible to describe the average assistant in California. This average nonprofessional assistant works in a department with three physical therapists. He has 11.5 years of education and only on-the-job training. He spends the largest part of his time, 18.6 per cent, preparing patients and cubicles for treatment; of the remaining time, 16.9 per cent is spent working in hydrotherapy; 14.9 per cent doing general errands and cleaning; 12.7 per cent in secretarial activities; 10.7 per cent, taking care of supplies; 9.2 per cent, applying hot packs; 8.8 per cent, in other activities; and 8.1 per cent, applying weights for exercise and assisting the physical therapist in immobilizing parts.

Twenty-seven or almost half of the department heads felt that there was a need for more nonprofessional assistants. The average ratio recommended was 1::2 whereas the average existing ratio was only 1::3.

The ratio of these assistants to physical therapists as it exists in each department was compared to the ratio recommended by the head physical therapist to discover if the need for more nonprofessional assistants was apparent. Twenty-three of the 37 replying proposed a ratio higher than that which already existed in their departments.

Approximately 76 per cent of the head physical therapists felt that their professional staff was engaged in some activities from which a nonprofessional assistant might free them. About 87 per cent of the department heads felt that if their physical therapists were freed of these activities they would be able to devote this time to activities of greater value to the patient.

CONCLUSIONS

Approximately 58 per cent of the hospitals included in this survey employed nonprofessional assistants in their physical therapy departments. In the average situation, one nonprofessional assistant was employed for every three physical therapists.

Several indications were discovered in this survey for the greater use of nonprofessional assistants in physical therapy departments. Almost half of the replies from heads of physical therapy departments stated that more nonprofessional assistants were needed in their departments. Others not recognizing the existence of a need for this assistance implied that such a need did exist. Department heads on the average recommended a higher ratio of nonprofessional assistants to physical therapists than that which existed in their departments. Over three-fourths of the department heads stated that nonprofessional assistants could free the physical therapist from some of his nontechnical duties and that professional services to the patient could be improved as a result. Because a critical shortage of qualified physical therapists exists, these facts become indications for the greater use of nonprofessional assistants.

The average assistant employed in physical therapy departments in California has eleven and one-half years of education and no special training other than on-the-job training. The education approximates that recommended by the American Physical Therapy Association; however, this association recommends in service training for the assistants. These assistants spend most of their time preparing patients and cubicles for treatment and the least amount of their time applying weights for exercise and assisting the physical therapists in immobilizing parts. Special training should be provided for nonprofessional assistants. It should be focused on preparing the assistant for specific responsibilities.

RECOMMENDATIONS

A survey of the role of nonprofessional assistants in physical therapy departments in California is a preliminary step for further investigations, all of which would contribute to the more effective use of nonprofessional assistants, which in turn should help extend the services of qualified personnel in the physical therapy profession. Consequently, similar studies should be made in different parts of the country in order to determine local situations.

An actual job analysis, breaking down the grouped activities of the nonprofessional assistants into individual tasks, would be valuable in setting up training programs. Directed interviews with head physical therapists aimed at determining the nature of the on-the-job training programs for nonprofessional assistants also would be valuable.

The most effective and profitable utilization of the nonprofessional assistant in a physical therapy department will come only as a result of an understanding of the nonprofessional assistant's background and cognizance of the role he will be called upon to play.

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Suggestions from the Field

A Strap to Aid in Passive Stretching of the Spastic or Contracted Lower Extremities

Gerald C. Miller, B.S.

Every physical therapist has at one time or another encountered the problem of stretching a spastic or contracted lower extremity and, of course, has tried to stabilize the contralateral part by tying it down with a towel or bed sheet, or by having an aide or another therapist hold it. The first method is inconvenient and often unsatisfactory, while the latter takes the time of two persons to do the work of one, which is obviously poor technic.

To eliminate this problem, a very simple and easily made strap may be used to hold the lower extremities securely to the plinth during treatment.

This strap is made of wool felt padding, one-fourth inch thick, and the underside is reinforced with canvas to give it more body (See figure 1). The strap can be secured to any size plinth by an attached buckle and leather belt. Positioned on the strap are two wool felt knee cuffs, each having two small leather belts and buckles. One belt is fastened proximal and the other distal to the knee joints. It is conventional procedure to use sponge rubber or soft toweling between the skin surface and the padding of the cuffs to prevent any irritation or abrasions in the event of violent spasms.

Physical therapist in office of physiatrist, Milwaukee.

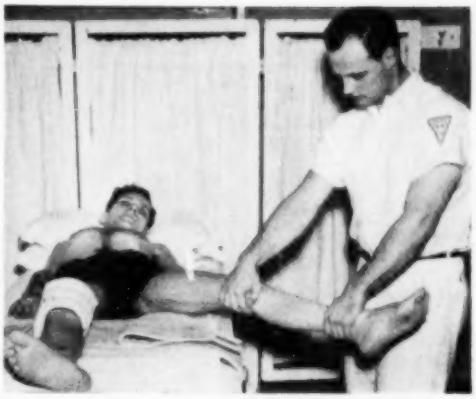


Figure 2. Treated extremity being carried through the various ranges of motion while the contralateral extremity is stabilized by the strap.

The uses of this strap include not only the stabilization of the contralateral extremity while the treated extremity is carried through the various ranges of motion (See figure 2), but it is beneficial also in stretching the low back area when both knees are stabilized. With the use of a wand, which both the physical therapist and patient grasp, and a footboard to stabilize the patient's feet, a gradual stretching effect can be easily obtained (See figure 3). This stretching also may be accomplished by the patient himself with the aid of a rope tied to the end of the plinth or footboard (See figure 4).

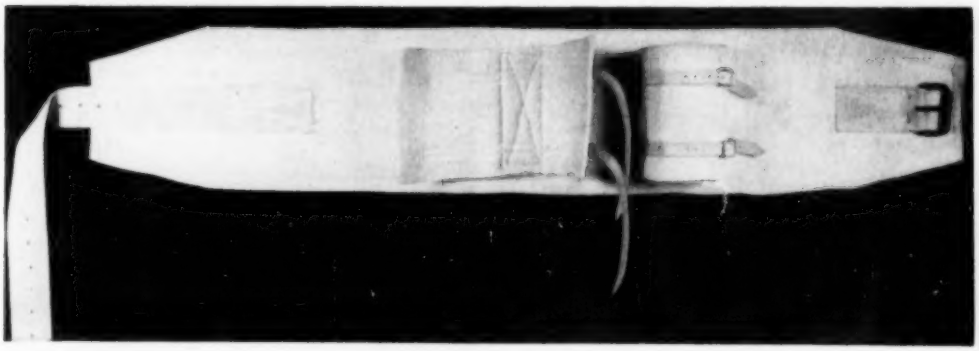


Figure 1. Picture of strap.

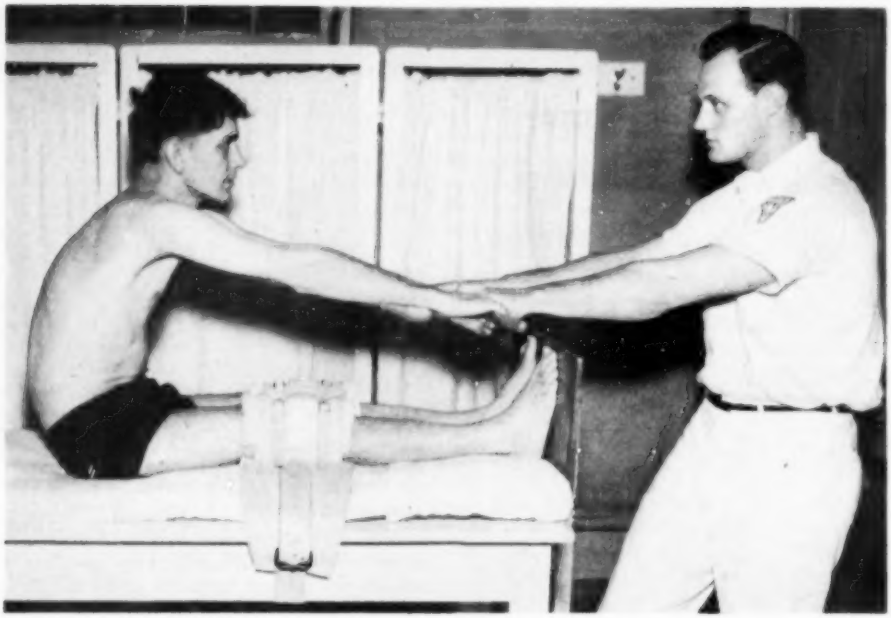


Figure 3. Stretching with use of wand and foot board.

Figure 4. Patient stretching with aid of a rope.

Figure 5 (Right). Heat being applied to adductor group.

All photographs through the courtesy of the Medical Illustration Laboratory of the Veterans Administration, Hines, Illinois.

Another feature of therapeutic value is use of the strap for stretching a particular muscle group when heat is being applied. It is known that if a spastic or contracted muscle is subjected to a slight or moderate stretch while receiving heat, relaxation is generally facilitated. This degree of stretch can be easily regulated (for example, the adductor group) by stabilizing the treated extremity at one side of the plinth while the other extremity is placed near the opposite side. By this means heat can be applied directly to the individual muscle group desired (Figure 5). Occasionally it may be necessary to place the untreated extremity against the side of the plinth. In the event this is done it should be cushioned by sponge rubber, toweling, or a pillow to prevent bruising.

DIMENSIONS OF STRAP

Strap
9 in. x 48 in.
Belt 2¼ in. x 48 in. 16 holes

Cuffs (sewn on strap) *Belts* (2 on each cuff)
⅝ in. x 10 in. 6½ in x 17 in.
3 in. apart
16 holes

Note: Distance between cuffs is optional, it may vary from 7 in. to 12 in. depending on personal preference.

The author wishes to express appreciation to the following personnel of the Veterans Administration Hospital: to physical therapists Robert Case, Gloria Verbic and David Scott for their work in devising this strap; and to the Orthopedic Brace Shop for its construction.

Meet Our New Contributors

Julianne Cunningham, Instructor, School of Physical Therapy, University of Connecticut, was graduated from Tufts College with a B.S. degree and received her certificate in physical therapy from Bouve-Boston School of Physical Education.

Miss Cunningham held the position of physical therapist at the Newington Home for Crippled Children, Newington, Connecticut and the Institute for Crippled and Disabled, New York City. She is a member of the American Physical Therapy Association and of the American Registry of Physical Therapists.

Miss Cunningham will be remembered as the charming and talented leading lady of the film, "Within Your Hands," photographed at the University of Connecticut for the American Physical Therapy Association.

Frank V. Curry, Director, Department of Physical Therapy, Cook County Hospital, Chicago, served in the U.S. Navy where he was assigned to several physical therapy departments including duty on the Hospital Ship U.S.S. REPOSE.

After leaving the Navy, Mr. Curry enrolled at Morningside College, where he received his B.S. degree, and at the University of Iowa for the course in physical therapy. He was awarded a certificate in June 1951. Recently, Mr. Curry fulfilled requirements for a master's degree in physical therapy at the University of Southern California.

He is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Franklin L. Lyon, Senior Medical Student, Ohio State University, attended Bowling Green State University and was graduated with an A.B. degree. From January 1, 1953 to March 30, 1953 (during the vacation quarter from school) he was associated with the Department of Physical Medicine, Ohio State University and under the supervision of Warren Wheeler, M.D., did respiratory studies on poliomyelitis patients. It was at this time that he and James P. Zimmerman, physical therapist, prepared the article, "Hydrotherapy with Respiratory Poliomyelitis Patients," which appears in this issue of the *Review.*

Mr. Lyon, a member of Phi Chi Medical Fraternity, will receive his medical degree next year and plans to qualify for the specialty of pediatrics.

Gerald C. Miller received his B.S. degree in physical education from LaCrosse College in 1950, and his certificate in physical therapy from the University of Wisconsin the following year.

Before accepting his present position in Milwaukee as physical therapist in the office of a physiatrist, Mr. Miller was staff physical therapist at Hines VA Hospital, Hines, Illinois. The article, "A Strap to Aid in Passive Stretching of the Spastic or Contracted Lower Extremities," was written when Mr. Miller was Supervisor of the Neurology Clinic at Hines VA Hospital.

He is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Elizabeth Zausmer, Assistant Technical Director, Physical Therapy Department, Children's Medical Center, Boston, and Lecturer on Physical Therapy at Simmons College, received her physical therapy preparation at Harvard Medical School. She attended Boston University where she was graduated with a B.S. degree in education, and in 1952, fulfilled requirements for her master's degree in education.

Mrs. Zausmer was a staff member of the Physical Therapy Department at Children's Medical Center from 1943 until she accepted her present position of Assistant Technical Director in 1952. She is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

James P. Zimmerman, Supervisor of Physical Therapy, Polio Unit, Children's Hospital, Columbus, Ohio, is a graduate of the University of Maryland where he received his B.S. degree. He completed requirements for a physical therapy certificate at the University of Wisconsin.

Prior to becoming Supervisor of the physical therapy department at Children's Hospital, Mr. Zimmerman was staff physical therapist in the department. He is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Suggestions from the Field

A Convenient Master Schedule Board

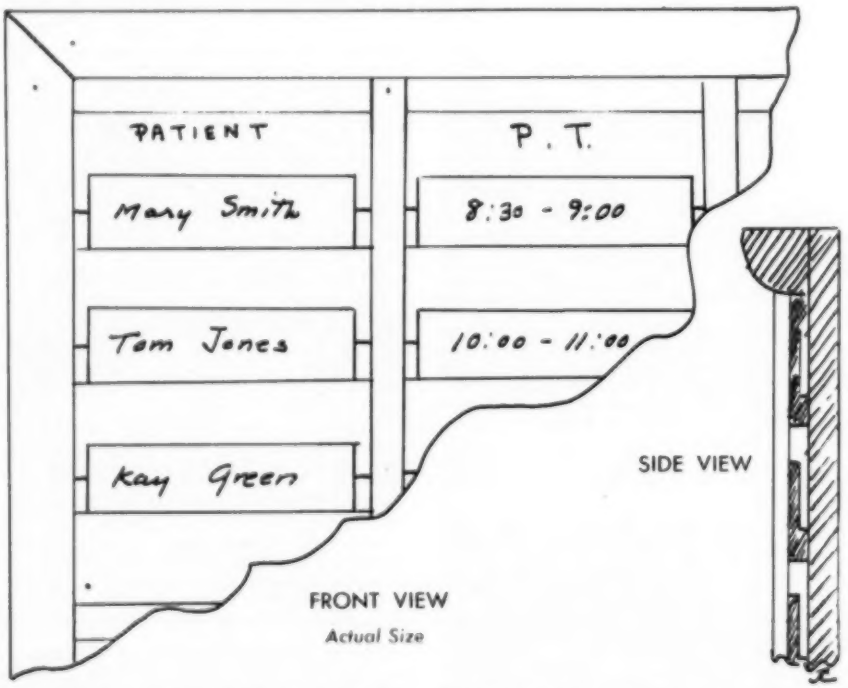
Julianne Cunningham, B.S.

What a waste of time and energy for the department head to write out and erase, rewrite and erase some more, struggling with the daily or weekly P.T. schedule. Or think of the poor secretary who must take time to type the lists because no one can read the boss' writing! How much simpler to lift little name cards in and out in trying to find the most satisfactory schedule. We discovered this technic on a visit to New York State Rehabilitation Hospital several years ago, and returned to design a similar one for our use at Newington Home and Hospital for Crippled Children.

Instructor, School of Physical Therapy, University of Connecticut, Storrs, Connecticut.

The author managed to construct it herself with many a sore thumb, and more split wooden strips. It was quite a chore, but could be made quite simply by more adept O.T. friends! The following specifications should provide you with a convenient, light, portable, inexpensive schedule board. A ¼ inch plywood backing is recommended with ½ inch half-round for a molding. The grooved horizontal strips may be of ¼ inch by ¾ inch tapered to a narrow base, or one may prefer to use two single ply strips: the inner ¼ inch, the outer ½ inch in width or ¾ inch to hold the cards more securely. In the diagram ¼ inch vertical strips are suggested but string may be used as an alternative. Glue and hair thin nails should be used, and a dark stain finish is suggested to hide finger prints.

Thin cardboard name tags 1 inch by 2 inch are quite durable. We marked ours in several colors to indicate various wards, such as red for polios and blue for C.P.s. Our system was to place the physical therapists' names in the top row, the hours of the day down one side, and list each physical therapist's patients under her



The schedule board was designed by M. J. Sheldon, occupational therapy aide at New York State Rehabilitation Hospital, West Haverstraw, New York, with slight variation added by the author.

name. Another satisfactory method is to tack across the top more permanent tags naming various departments, such as Physical Therapy, Occupational Therapy, or School. The patients' names are inserted down the first column and after each name the hours in which he is to have his treatments. This would be useful for the ward nurse who must know where her charges are to be, as well as for the department heads who must evolve a well coordinated and balanced program for each patient.

The size of the board may be varied to needs and desires but a light portable board is easier to handle. We found ten columns across and twenty down adequate for our needs, but this may be changed to meet individual requirements.

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Editorials

THE publication entitled "Essentials of a Hospital Department — Physical Therapy" states that "pleasant and cheerful surroundings providing a maximum of daylight and fresh air and a stimulating environment for both the patient and staff should be a prime consideration when selecting the location of the physical therapy department in the hospital. The same consideration of harmony in design and color should be given to the interior decorating of the Physical Therapy department as is given to other hospital construction and design."

It is obvious to all of us that there are tremendous differences in the appearance and general atmosphere of our physical therapy departments throughout the country. A visit to other facilities may give you a feeling of contentment and even smugness when you recall, in contrast, your own attractive, happy department, or it may fire you with determination to do something about the situation.

Physical therapy, to be consistent and complete, should be accompanied by the psychologically curative effects of optimal physical surroundings including a restful color scheme, proper lighting and ventilation, an orderly arrangement of equipment, and an irreproachable cleanliness throughout the clinic. Any treatment administered day after day, even though excellent in itself, requires the additional value to be derived from a stimulating environment and friendly physical therapists. Ask yourself whether your clinic is a place to which patients enjoy coming and whether they are content during treatment, or is the occasion something to be endured because they know it is good for them? How would you feel if you were in their place?

If your department is not exactly as you would like it, a change usually is possible with a little initiative and effort. A can of paint, some metal or furniture polish and even soap and water will work wonders in an otherwise dismal clinic. A thing as simple as a bouquet of flowers always is appreciated. Posters, charts, and other occasional exhibits give added interest to the patient. One clinic has an aquarium of tropical fish which has been the source of pleasure to both staff and patients. The staff members of another clinic have hung appropriate murals. A few decorations to celebrate the approach of a holiday bring considerable satisfaction. In most cases the entire staff will be eager to help in the uplifting process. Latent potentialities and talents will be energized and many good ideas will be forthcoming. Pride in the department will mount as will the general esprit.

While everyone agrees that the primary duty of the physical therapist is to give the best treatment possible and exactly as prescribed, the provision of a cheerful, attractive, immaculate clinic is also an essential to the total care of the patient. Our profession will advance in the minds of our patients largely in proportion to our personal appearance and manner as physical therapists and the appearance and atmosphere of our departments. Technical perfection in physical therapy is not enough.

FOR a delightful and enlightening diversion, one should acquaint himself with the early *Physiotherapy Reviews*. Every physical therapist and student would gain a larger perspective of the profession if he spent some time with the writers of our history. The aims and aspirations of those pioneering physical therapists, the seriousness with which they took their responsibilities, and the philosophy evident in their writings are a joy and an inspiration to read.

In October-November 1929 President Hazel E. Furscott announced, on the Editorial page of the *Review*, a contest designed to stimulate writing among the members of the American Physiotherapy Association. All papers were to be in the National Office March first of the following year. Publication of the articles would follow in subsequent issues. Three prizes were offered; $50.00 and life membership to the American Physiotherapy Association, life membership, and honorable mention.

The July-August 1930 issue carried the results of that contest and the comments of the three physician judges. Mabel E. Holton won first place by writing on "Treatment of Infected Wounds by Means of Brine Baths"; Beulah Rader second with, "Ionization in Hypertrophic Rhinitis and Suppurative Otitis Media"; and Julia Tuggle third with, "Coordination Exercises Under Water for Spastic Paralysis Following Fracture of the Fifth Cervical Vertebra." The judges were exceptionally complimentary in their discussion of the "admirable group of papers."

There were eight articles submitted for the contest. History repeats itself for in 1952 and again in 1953 there were 8 papers submitted to the Research Section Committee for presentation at our National Meetings. A significant difference between these events separated by almost a quarter of a century is that in 1929 the membership numbered 470 junior and senior members combined, while the present active list is approximately 4,000.

The above comparison might seem unfair because submitting papers to the Research Section Committee may not be considered similar to the contest. Therefore, a further analysis of the *Review* for 1929 and 1952 was made and the following data was tabulated. The evidence speaks for itself.

year	No. members	No. issues	No. articles	P.T. contributors	incidence of contributors
1929	470	6	48	20	4.26%
1952	3,960	12	52	51	1.29%

In 1929 an average of 8 articles were published in each journal. Now that we have monthly issues there are 4 or 5 articles per journal. The present membership is 8.43 times greater than it was 23 years ago. Thus to maintain the precedent set by our fellow members in the 1929 *Review* we should have had a total of 169 member contributors in 1952. We fall far behind our predecessors despite the increased numbers of opportunities for continued professional growth, specialization and postgraduate education.

The Editorial Board of the *Review* and the Research Section Committee cannot demand that the membership of the American Physical Therapy Association contribute to the advancement of the profession through writing. The professional person thinks enough of his institution, his profession, and himself to take the time and energy to contribute to its prestige, growth, and development. Are we less professional today than those sincere and far-sighted physical therapists of the nineteen twenties?

Association Activities

Summary of the Minutes of the House of Delegates
American Physical Therapy Association
Thirtieth Annual Conference

The Opening Session of the House of Delegates of the American Physical Therapy Association convened in Dallas, Texas, at the Baker Hotel on June 15, 1953, at 2:00 P.M., with E. Jane Carlin, Speaker, presiding.

After the call to order by the Speaker, the roll was called by the Secretary. A quorum being present, the House proceeded with the business of the session. A greeting was read from Dr. Mennell, expressing his wishes for a successful conference.

Following the reading and adoption of the conference rules, the Speaker appointed the following committee to edit the minutes: Vida Jo Niebuhr, Dorothy Spark, and Lorraine Paulson.

Dorothy Graves, Chairman of the Program Committee, presented the Conference program as a report from that Committee and it was accepted.

Reports of the officers were read in due order. The Chairmen of Committees on Education, Relations, and Public Laws read their respective reports. All reports have been published in the September issue of the *Physical Therapy Review* except the financial reports which were mimeographed and distributed to chief delegates. A question and answer period was announced for the closing session and it was requested that as many as possible be presented in writing in advance.

Vice President Nesbitt took the chair and asked for the report of the Publications Committee presented by Miss Carlin, Chairman. Having presented her report, Miss Carlin resumed her position as Speaker and called for the reports of the Exhibits and Nominations Committees. Lorraine Lake, as a member of the Special Committee on Recruitment, gave the report on recruitment.

Miss Elson, Executive Director, gave a condensed report of the activities of the National Office Staff. Statistical reports from the National Office were published in the August *Review*. This concluded the busines of the first session.

The closing session of the House of Delegates opened at 9:00, A.M., on June 16, 1953, with the Speaker reading greetings from the Vermont Chapter. Unfinished business included the discussion of Association finances. Margaret A. Kohli, Chairman of the Finance Committee, presented background information concerning Association finances. The balance of receipts over expenditures this past year was $36.36. Miss Kohli explained that such a narrow margin makes it impossible to initiate new projects necessary for the development of the Association. The Finance Committee, with the endorsement of the Executive Committee, recommended an increase in annual dues of $5.00 for active members, $4.00 of this amount to be retained by the National General Fund and $1.00 to be returned to the Chapters.

This recommendation for dues increase was stated as a motion by the Pennsylvania Chapter and seconded by the District of Columbia Chapter. After discussion the Chair read the motion and it was duly voted and carried by a raise of hands vote. It was then moved and seconded that the proposed amendment for dues increase be submitted in writing to the delegates of the House of Delegates to be then voted by mail within the time specified by the Secretary. The motion was unanimously carried by a voice vote.

The Massachusetts Chapter presented a motion that consideration be given a plan whereby recent graduates might be given a reduced membership fee if application for membership be made within three months. Motion was seconded and after considerable discussion was put to a vote. The motion was lost.

The first item of new business was the reading by the Secretary of the summary of the minutes of the Annual Meeting of the Executive Committee. Miss Haskell, Associate Executive Director, described a plan which would provide

Health and Accident Insurance on a group basis for active members of the Association. Information on the plan will be sent to all members. Miss Haskell also led a discussion on the question of professional liability insurance for physical therapists which will be investigated further.

The selection of the 1956 Conference site aroused considerable rivalry between New York and Connecticut. In view of the fact that the Association may be host to the World Confederation for Physical Therapy in 1956, the question was laid on the table in order to allow for further consideration concerning the site for so large a conference in the event the Confederation does accept our invitation to meet in this country.

The New Jersey Chapter then proposed a motion to leave the selection of the 1956 Conference site to the discretion of the Executive Committee, but that a preference for a site be obtained from the House of Delegates. This motion carried unanimously. The House of Delegates voted on the question of preference and the majority favored a conference to be held outside a large city.

The following resolution introduced by Mary Clyde Singleton, Director, was unanimously adopted:

Whereas, thousands of our gallant allies of the Republic of Korea, both fighting men and civilians, have suffered sickness and physical disability as the result of the Communist agression in South Korea; and

Whereas, physical therapy services are essential in the rehabilitation of these physically handicapped victims of agression; and

Whereas, the only physical therapy services available to the sick and disabled of Korea have been made possible through the efforts of the United Nations and its specialized agencies and American voluntary organizations; and

Whereas, these organizations have announced their intention of fostering the development of programs for training qualified Koreans in physical therapy through the organization of physical therapy courses in Korea;

Therefore, be it resolved by the House of Delegates of the American Physical Therapy Association in session in Dallas, Texas, June 14-20, 1953, that the American Physical Therapy Association commend the United Nations and its specialized agencies and those American voluntary organizations concerned with the development of physical therapy services in Korea for their foresight, and pledge both its spiritual and material assistance in every way possible through the American Physical Therapy Association, its chapters and its international counterpart, the World Confederation for Physical Therapy, in the development of such services, and that copies of this resolution be forwarded to the appropriate officials of the United Nations, the United Nations Korean Reconstruction Agency, the World Health Organization, The American Korean Foundation, Church World Service, and other interested organizations.

The Illinois Chapter moved that the Chief Delegate to the House of Delegates receive a copy of the audit of the Treasurer's report at each annual meeting. This would require amendment to the Bylaws, Article V, Section 10(c). It was seconded, but following discussion from the floor, the motion failed to carry. It was pointed out in the discussion that this would be a desirable precedent to establish, but that it was not necessary to amend the Bylaws.

The following resolution from the Wisconsin Chapter was adopted by the House of Delegates: Resolved, that the House of Delegates go on record as endorsing the following recommendations: "That the American Physical Therapy Association members be alerted to the problem of corrective therapy taking over the phase of therapeutic exercise; that the physical therapists who are presently working with the corrective therapists make every attempt to assume their full responsibility in regard to therapeutic exercise; that the Executive Committee consider appointing a committee to study this problem and make recommendations to the appropriate medical groups."

The Colorado Chapter introduced a resolution proposing discussion by the House of Delegates of the subject of private offices for physical therapists and medical supervision. When put to a vote the motion was lost.

The Connecticut Chapter moved to establish a joint membership fee for married couples, both of whom are physical therapists. This motion was lost.

Northern California proposed a resolution asking for the earliest possible development of a more extensive policy on foreign-trained physical therapists becoming members of the American Physical Therapy Association. This resolution was adopted as read.

A motion by the Virginia Chapter requiring that reports of National Officers, Standing Committees, Special Committees and the National Office Staff be kept to a minimum in the House of Delegates, but that the full report be presented to each Chief Delegate before the opening session of the House of Delegates, was voted upon and lost.

The House of Delegates failed to adopt a resolution from the Northern California Chapter proposing that chapters allow their delegates to vote at their own discretion, having heard discussion from the floor of the House of Delegates. Discussion brought out that chapters have the

right to instruct their delegates specifically or to allow them to use discretion.

President, Lt. Col. Harriet S. Lee, presented chapter charters to the San Joaquin Valley Chapter of California, and to New York State Chapter since the four previous New York Chapters have combined into one chapter; a charter was presented to the Michigan Chapter following a merger of Eastern and Western Michigan chapters; Mississippi received a charter as a newly organized state chapter.

The results of the Chapter exhibits contest were announced with Iowa, first, Texas, second, and Southern California, third.

The question and answer period at the close of the House of Delegates included requests for information concerning the Minimum Essentials for Physical Therapy Schools; the use of non-professional assistants in physical therapy departments; the endorsement of the Bolton Bill by the American Physical Therapy Association; a review of state legislation to be published in the *Review;* eligibility for membership; Registry Membership; the relationship between low salaries and low recruitment, chapter information for proposed questions for the House of Delegates Agenda; request for a list of educational materials available on loan; and a question concerning the minimum number of members needed to form a new chapter. These questions were answered by members of the National Office Staff and Committee Chairmen. It was suggested that a question and answer section be developed in the *Physical Therapy Review.*

There being no further business, the proceedings were adjourned at 12:15, P.M., on June 16, 1953.

DOROTHY E. VOSS, *Secretary*

Registration in California

We have been asked to supplement information given in the September *Review* regarding the recent law passed to provide legal registration of physical therapists in California. Any physical therapist who was practicing on or prior to September 10, 1953, who was graduated from a school or course of physical therapy approved by the board (Board of Medical Examiners of the State of California) may on application and submission of substantiating evidence be licensed without examination within one year of the effective date of the law (September 10, 1953).

There are additional provisions for registration without examination for those who have been administering physical therapy in the Medical Corps of the United States Army or the Medical Service Corps of the United States Navy for a period of one year or more prior to the effective date. Certificates will be issued to such persons who apply prior to September 10, 1955.

Letter of Appreciation

On behalf of the Board of Directors of the American-Korean Foundation, we would like to extend to you our deep gratitute for the resolution which was adopted by the House of Delegates of the American Physical Therapy Association in annual session in Dallas, Texas, on June 16, 1953.

Sincerely,

ROBERTSON M. FORT

Assistant to the Executive Director

1954 Elections

The Committee on Nominations has sent a memo to all Chapter Presidents and District Chairmen requesting chapter cooperation in suggesting nominees for election to office in 1954.

All officers, two directors to replace Marguerite Irvine and Margaret Kohli, and three members of the Committee on Nominations will be elected in June. Individual members may also suggest nominees and may obtain proper forms for this by writing the National Office. Suggestions must be received by November 1.

Chapter Exhibits Available for Loan

The National Committee on Exhibits has compiled the following list of chapter exhibits which may be borrowed by other chapters.

Correspondence and arrangements for borrowing these should be directly with the person named.

1. Slides:

Virginia

Purpose: general education regarding physical therapy for medical groups.

Description: "Cross Section" — showing Rehabilitation Services of Woodrow Wilson Rehabilitation Center.

Mr. Charles Smith, Woodrow Wilson Rehabilitation Center, Fishersville, Virginia.

2. Movies:

Delaware

Purpose: recruitment.

Description: scenes of physical therapy in action in clinics and hospitals. Silent; black and white; 16 mm.; 15 minutes running time.

Clara Hunter, Delaware Curative Workshop, 16th and Washington Streets, Wilmington, Delaware.

Pennsylvania

Purpose: general education.

Description: "Exercise Program for Axillary Nerve Injuries." Silent; black and white; 16 mm.; 8 minutes running time.

Ruth M. Guerin, 6491 Woodcrest Avenue, Philadelphia 31, Pennsylvania.

3. Posters:

Eastern Missouri

Purpose: recruitment.

Description: large pictures illustrating physical therapy training and treatment with appropriate lettering. Display space required 5 x 3 feet; approximate weight 10 pounds.

Ida Paul, Homer G. Phillips Hospital, St. Louis, Missouri.

Georgia

Purpose: recruitment.

Description: 3 panels: a. description of what physical therapy is; b. pictures of some methods used in treatment; c. information concerning physical therapy schools. Display space required; 6-foot table; weight 116 pounds including case; to be displayed on table using self-contained stand.

Marianna Johnson, Warm Springs Foundation, Warm Springs, Georgia.

Northern California

Purpose: two exhibits, one for recruitment, other for general education regarding physical therapy for medical groups.

1. "Physical Therapy"; 3 panels; for recruitment. a. "The Work"; b. "The Job"; c. "The Need."

2. "Physical Therapy in Post-Surgical Care"; 3 panels; General education. a, b, and c picturing 3 cases including xrays.

Display space: 4 x 8 feet; weight 40 pounds; to be displayed on table. Shipping case not available.

Vera Rickman Ford, Palo Alto Clinic, 300 Homer Street, Palo Alto, California.

New York, Greater New York District.

Purpose: education.

Description: 29 mounted pictures showing "Progressive Aids in Ambulation for the Hemiplegic."

Display space: 6 x 8 feet; weight 3 to 5 pounds; to be hung for display.

Blanche Talmud, 161 West 16th Street, New York 11, New York.

Massachusetts

Purpose: recruitment.

Description: series of posters showing physical therapists at work, for use on Career Days in high schools and junior colleges.

Display space: 5 x 10 feet; weight: 35 pounds when crated; to be displayed on table or hung; shipping case not available.

M. Lella Dwyer, 59 Sawyer Avenue, Dorchester, Massachusetts.

Pennsylvania

Purpose: general education.

Description: adaptable for changing topic; now set up for "Exercises for Axillary Nerve Injuries."

Display space: 6 x 7 feet; to be displayed on self-contained stand; shipping case available.

Ruth M. Guerin, 6491 Woodcrest Avenue, Philadelphia 31, Pennsylvania.

Tennessee

Purpose: general education.

Description: poster with pictures representing different phases of physical therapy.

Display space: 3 to 4 feet; weight: 10 to 20 pounds; to be displayed on self-contained stand or hung; shipping case available.

Sallie Hill, 212 Sequoia, Chattanooga, Tennessee.

Virginia

Purpose: recruitment.

Description: 2-panel poster; includes pictures of physical therapy and map of United States showing approved schools of physical therapy.

Ruth Latimer, 3224 Stuart Avenue, Richmond, Virginia.

Greater New York District Co-Sponsor of Institute

Under the sponsorship of the United Hospital Fund and the co-sponsorship of the New York Occupational Therapy Association and the Greater New York District of the New York State Chapter of the American Physical Therapy Association, an Institute of Physical Medicine for O.T.'s and P.T.'s is being conducted this fall. The theme of the Institute is, "Factors Underlying Theories of Treatment of Neurological Disabilities." It will be conducted as full-day sessions and will be held on five consecutive weeks, starting the second week of October, 1953.

Included in the topics for the days are:

1. The Central Nervous System — Its Relationship to Neurological Disabilities.
2. The Rationale and Application of Kabat-Kaiser Treatment.
3. The Rationale and Application of Rusk-Deaver Treatment.
4. The Rationale and Application of Temple Fay Treatment.
5. Importance of Planning and Organizing in the Department of Physical Medicine.
6. Research in the Department of Physical Medicine.

Demonstrations and discussions will be conducted by outstanding authorities. Arrangements have been made to have Dr. Herman Kabat, Dr. Temple Fay, Dr. Howard Rusk, Dr. George Deaver, and others demonstrate the various methods with patients using their respective therapists.

An objective of the Institute is to bring to occupational therapists and physical therapists the most recent information on selected neuromuscular conditions and their treatment. Other sessions, such as those on helping people to learn, and planning and organizing, are concerned with the effective utilization of up-to-date knowledge. Recognizing that professional self-appraisal and interest in research are fundamental to progress, the Institute also includes sessions devoted to these two subjects. In addition to the speakers, the Institute offers unusual opportunities for group discussion and participation. Panel or other discussion time is provided in each session.

Any Questions?

The suggestion for a "Question and Answer" department in the *Review* was enthusiastically received by the House of Delegates meeting in Dallas.

Members and chapter officers are always urged to take advantage of consultation service available from the National Office staff. Many of the inquiries received pertain to questions others would like answered; therefore, with this issue of the journal we begin our new section for your service.

Questions may be directed to this department or will be selected from letters received by the staff. All correspondents will receive also, as in the past, a personal reply.

Question —

I would appreciate a list of staff members to whom to address various requests.

— Chapter Secretary

Answer —

Letters directed to the National Office will be referred to the proper person but responsibilities are as follows:

Administration of APTA, national and international allied professional contacts ..... Mildred Elson

Chapter organization, legal registration, ethics, membership status, bylaws ..... Mary Haskell

Professional problems, administration, employment, polio ..... Lucy Blair and Ruth Whittemore

Educational problems ..... Dorothy Hewitt

Recruitment and public relations .... Marjorie Hyer

Membership News

Marriages

Helen S. Weeks of Napa, Calif., now Mrs. Helen Shaber, Los Angeles, Calif.

Imogene Bragg of Norfolk, Va., to Joseph H. Geoghegan, Norfolk, Va.

Joan Griswold of Old Lyme, Conn., to James B. Park III, Houston, Texas.

Myrtle Lewis of Memphis, Tenn., now Mrs. Myrtle Higdon, Memphis, Tenn.

Nancy Lee Hirsh of New York, N. Y., now Mrs. Nancy H. Kronfeld, New York, N. Y.

Helen Nichols of Oakland, Calif., now Mrs. Helen Tiura, Oakland, Calif.

Lily Durand Burley of Pompano Beach, Fla., to Keith R. Shand, Ft. Lauderdale, Fla.

Lt. Edith M. Conant of Camp Gordon, Ga., to Keith Lanning, Ft. Bragg, N. C.

Mary Burke of St. Joseph, Mo., now Mrs. Mary Bauman, St. Joseph, Mo.

Margaret G. Lothrop of Needham, Mass., now Mrs. Margaret L. Jankovich, Ontario, Canada.

Dorothy M. Christoffersen of Elmwood Park, Ill., now Mrs. Dorothy C. Danielson, Chicago, Ill.

Alice Torres-Bulls of San Juan, Puerto Rico, to Luis A. Blay, San Juan, Puerto Rico.

School News

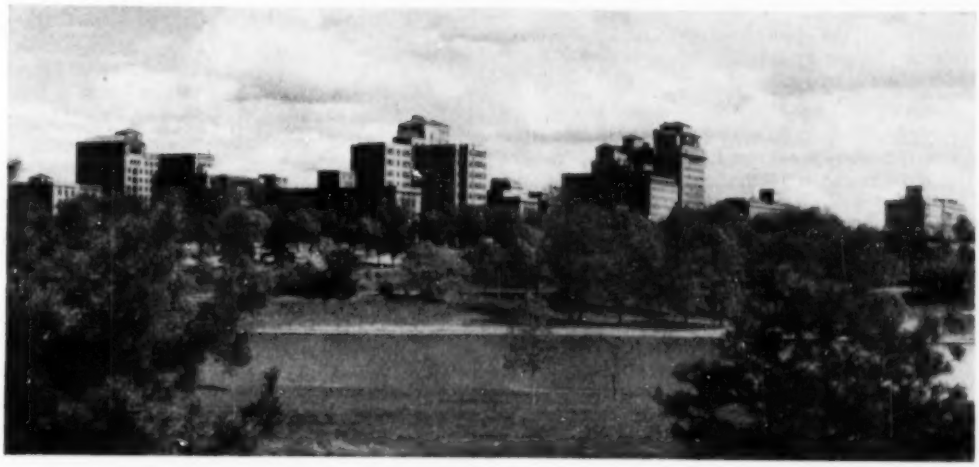
Army Physical Therapy Course

The Army announces the names of 22 young women college graduates commissioned as second lieutenants of the Women's Medical Specialist Corps to take the 12-month Army Medical Service physical therapy course which began October 5.

The course is conducted at the Medical Field Service School, Fort Sam Houston, Tex., and includes applicatory training at selected Army hospitals. This is the ninth class to be assembled, a new group beginning the curriculum each spring and fall. The present class represents 20 different colleges in all sections of the nation.

The Army physical therapy training course consists of an academic phase covering fundamentals of the profession followed by closely supervised clinical experience at Army hospitals.

Upon completion of the course the young women will be fully qualified physical therapists, eligible for service on Army hospital staffs in this country and overseas. They will also be eligible for membership in the American Physical Therapy Association which is the equivalent to professional certification.



Washington University Medical Center at Saint Louis.

Washington University

Washington University, Saint Louis, this year celebrated its centennial anniversary — the first private, nonsectarian college or university west of the Mississippi.

A new seal was designed to mark the occasion. It is guaranteed to produce nostalgia among alumni, for it is a stylized version of Brookings' twin towers and the archway through which they reached the Hilltop campus.

This traditional symbol which represents Washington University to thousands has been incorporated into the handsome new sleeve patches worn by its upperclass physical therapy students. However, on the medical school campus the students find themselves a little too busy to visit Hilltop and Brookings very often. They are convinced, though, that they walk as many miles each day through the soon-familiar maze of the medical center as they did on Hilltop's 266 acres.

The professional physical therapy course has been officially a curriculum offered by the university only since 1943 when the Division of Auxiliary Medical Services, Washington University School of Medicine, was organized to include Departments of Physical and Occupational Therapy, Medical Technology, and Hospital Administration. This step, in keeping with educational trends, made possible a degree program.

There was no necessity to familiarize medical school faculty members with the needs of students of physical therapy, for they had been participating in their education since 1942 when the Barnes Hospital School of Physical Therapy Technicians was authorized.

The Barnes school's first medical director, the late Dr. Frank H. Ewerhardt, remains an inspiring memory to its fifty-nine certificate graduates. His retirement coincided with its transfer to Washington University.

A four-year curriculum leading to the degree of Bachelor of Science in Physical Therapy is the program offered now. After two years of study at Hilltop to gain a background rich in the humanities as well as in science, the students transfer to the medical school for the professional curriculum. Many students transfer as juniors from other accredited colleges where they have secured the prerequisite education.

The preclinical and clinical departments of the medical school cooperate fully to provide instruction in the basic and applied medical sciences, while the staff of the physical therapy department teaches the theory and practice of the profession. The personnel of the Barnes Hospital Physical Medicine Department assist in the classroom and clinical instruction also.

The students begin preliminary clinical ob-

servation and supervised practice in the second semester of the junior year. The entire final semester before graduation is reserved for their block clinical experience.

Each student has two nine-week assignments to different affiliating hospitals to provide him with a well-rounded background of clinical experience. The department is fortunate in the number and location of its affiliates. Its men and women may be assigned to installations at New York, Chicago, Indianapolis, Iowa City, Dallas, or to one of the three St. Louis area affiliate hospitals. Actually, when the students return for their June commencement they have their first class reunion.

Even though the university boasts four Nobel prizes winners in residence, there is no precedent forbidding fun. The world's second largest park is just across the street, permitting a rapid transition, indeed. Forest Park offers an outstanding art collection and a zoo whose chimps are now familiar television stars. Tallyhos and canoes afford interesting occupations for moonlight nights, while the park's tennis courts and golf links attract the energetic. Picnics and bridge are favorite pastimes, too.

The last of the Mississippi river showboats still presents melodrama nightly; music the year round is provided by the Symphony Orchestra and the magnificent outdoor Municipal Opera.

The frequent medical conventions the city attracts are classified as fun by the students, but they admit to their being valuable supplementary education, also.

One of the most pleasant opportunities the students enjoy is the cultivation of friends among the many students from foreign countries. In particular, there are many Thailand advanced students, for the medical school has "adopted" the Bangkok Medical School. Beautiful Indian saris and slim, slit-skirted Chinese gowns coupled with the sound of many languages lend something of the United Nations atmosphere to the environment of which the physical therapy students are an integral part.

Three more buildings are being added to that environment now. Of special interest to the students and staff of the department, however, is a fourth which is still in blueprints carrying the legend "Washington University Rehabilitation Center." Clinical facilities are to occupy the first floor to service the medical center and the community. Its design calls for research laboratories, a library, a student lounge, a special gymnasium for the second floor, and the building's construction will be such that a third floor can be added to provide inpatient care.

New Student Members

University of Michigan

Mary A. Beatson	Carolyn Loughlin
Kathleen Crimmins	Suzanne Morgan
Charlyn Croninger	Louise A. Olmsted
Charles Hesse	Ann Petrie
Joyce Klukowshi	Arbon L. Reed
Lisa Kolb	Kathleen R. Ryska
Wilma Krans	Steve Vukas

General News

National Society to Convene

Dr. Edward J. McCormick of Toledo, Ohio, president of the American Medical Association, heads a list of distinguished authorities scheduled to speak on the care, treatment and training of crippled children at the 1953 annual convention of the National Society for Crippled Children and Adults, Nov. 12-14 at Chicago's Palmer House.

Lawrence J. Linck, executive director of the Easter Seal Society, made the announcement of Dr. McCormick's participation, and pointed out that the noted physician has served four years as counselor to the National Society from the AMA.

Another prominent personality will be Dr. Frances R. Horwich, Chicago, leading child development authority who, as "Miss Frances," has made the "Ding Dong School" a nationally famous program on television. Dr. Horwich will be principal speaker at the annual parents institute.

Dr. Henry H. Kessler, medical director of the Kessler Institute for Rehabilitation, West Orange, N. J., and counselor in rehabilitation to the National Society, will head up a panel on rehabilitation at the convention.

In addition to other outstanding speakers, Mr. Linck said that the convention program will include general sessions, seminars, exhibits, demonstrations, workshops, social events and other features packed with information and inspiration to appeal to all rehabilitation workers, volunteers and parents of crippled children who will attend the convention from across the nation.

Dr. William T. Sanger, president of the National Society, will preside at this year's convention marking the Society's 30th annual meeting and 32nd year of service to the nation's handicapped.

Architecture and its adaptations to meet the needs of the crippled will be featured for the first time at this year's three-day meeting. A forum on architectural planning for public buildings, schools, and hospitals will be included. A special architectural exhibit will contain a model rehabilitation center developed by Salmon and Salmon, architectural consultants of the National Society, and sketches and blueprints from the U. S. Public Health Service, the American Hospital Association and the Easter Seal Societies.

A traditional convention feature, a panel of distinguished persons who have outwitted their handicaps to become productive and successful members of society, is also planned for the meeting.

Recreation will also be considered from the angle of planning recreational programs as part of the total program in hospitals and schools. Special emphasis in the recreation workshop will be given to the needs of the homebound.

Social functions will include an open house, luncheons and the annual President's dinner. Music will be provided by the Valparaiso University Choir of Valparaiso, Ind.

Foundation Appoints New Director of Research

Dr. Henry W. Kumm of Chocorua, N. H., and New York City, has been appointed director of research of the National Foundation for Infantile Paralysis, it was announced today by Basil O'Connor, president.

Dr. Kumm, who had spent 23 years on the staff of the Rockefeller Foundation for Medical Research before joining the National Foundation in July 1951, replaces Dr. Harry M. Weaver of Bedford Village, N. Y., who has resigned.

Well known for his part in the Rockefeller Foundation investigations leading to the control of yellow fever, Dr. Kumm also has done extensive work in the study of modes of transmission of yaws and the control of malaria. He conducted field studies of the epidemiology of yellow fever in Nigeria, W. Africa, and was director of the Yellow Fever Laboratory in Rio De Janeiro from March 1945 until that organization was turned over to the government of Brazil at the end of 1945. He spent two years in the British West Indies with the Jamaica Yaws Commission and represented the Rockefeller Foundation in malaria and yellow fever control work in Costa Rica, El Salvador, Panama, Colombia and Brazil.

During World War II he served as civilian consultant to the Surgeon General of the U.S. Army in Italy, directing field studies of the use of DDT against malarial mosquitoes in the marshes near Rome and Naples.

Dr. Kumm was born in Wiesbaden, Germany, son of the eminent African explorer and geographer, Dr. H. Karl W. Kumm. He came to this country from England and became an American citizen in 1945. He received his B.S. from Haverford College in Pennsylvania, his M.D. and Doctor of Public Health from John Hopkins University. He also won a diploma in Tropical Medicine from the Conjoint Board of England.

He is a member of the American Medical Association, the Medical Societies of the County of New York and the State of New York, the American Association for the Advancement of Science, the American Society of Tropical Medicine and Hygiene, and the Royal Society of Tropical Medicine and Hygiene of England.

He is the author of some 50 papers on tropical medicine and poliomyelitis.

Members of the American Physical Therapy Association who attended the Dallas Conference heard Dr. Kumm's report on "Progress on Research in Poliomyelitis."

Report on Development of Polio Vaccine

Further progress in the development of a practical polio vaccine was reported today by Dr. Jonas E. Salk, research professor of bacteriology at the University of Pittsburgh School of Medicine.

In an interim report made to hundreds of the nation's child specialists gathered for the 22nd annual meeting of the American Academy of Pediatrics, Dr. Salk disclosed that on the basis of present findings "there may be several possible methods of producing a safe and effective vaccine against polio."

The Pittsburgh scientist, whose studies are being supported with March of Dimes funds from the National Foundation for Infantile Paralysis, revealed that an additional 474 children and adults have been vaccinated with several experimental vaccines. The vaccines used have proved to be completely safe and capable of stimulating the production of polio antibodies.

The new group, ranging in age from 3 years to over 21, are from Allegheny County, Pennsylvania; most of them from Sewickly and Leetsdale — suburbs of Pittsburgh. This brings the total to 637 subjects who have participated in the study.

Although the several experimental vaccines being used vary in the manner of production or administration, they all are prepared from polio virus of all three types grown in cultures of monkey kidney tissues, and chemically-killed with formaldehyde to render them safe.

Some were "aqueous" vaccines — chemically-killed virus contained in a watery solution; others were "emulsified" vaccines — similar to the former but mixed with mineral oil. Some were administered as single "shots"; others in series of two or three doses at weekly or longer intervals. There was even variation in how the vaccine was injected — some between the layers of the skin and others into the muscles.

The vaccines used in the study stimulated the production of antibodies within a few weeks after vaccination. Most of those in the new group have been under observation for three to four months and the trends thus far suggest persistence. In a small group of the earlier series, under observation for about seven months, there has been little or no decline. Dr. Salk explained that observations have not continued long enough to make conclusive statements on persistence of antibodies.

The report made clear that although the vaccine studies now include more than 600 persons, results of blood tests on only a portion of the group are available. The examination of multiple blood samples from all subjects to determine prevaccination and postvaccination levels of antibodies to each of the three polio virus types is exceedingly time consuming. Improvements constantly are being made in potency of virus, safety tests and inactivation methods of the vaccines.

In the group under investigation, the report showed that 60 per cent of the children between the ages of three and eight years had no polio antibodies before vaccination. More than 30 per cent of them had antibody for one type; considerably less than 10 per cent had antibody for two types. Only an occasional child had antibody for all three types. With increasing age, a higher proportion of persons had antibody for one or more types, but even in the older age groups a significant proportion lack protective antibodies to one or more polio viruses.

Dr. Salk discussed the completeness of evidence as to the safety of the experimental vaccines being used in the study. Rigorous laboratory tests, including tests in tissue culture as well as inoculation of monkeys, provide assurance that the virus in the vaccine has been killed by the formaldehyde treatment. In addition, the vaccines have been administered to animals and humans who had antibody in their blood before vaccination. In all instances, vaccination resulted in a tremendous increase in antibody. If the vaccine contained living virus, he said, the antibody previously present in the blood would have neutralized the injected virus and there would not have followed the tremendous increase in antibody.

When one person whose blood sample showed that antibody to one of the polio viruses was present — presumably as a result of an unknown polio experience in the past — received one injection of an experimental polio vaccine, within a few weeks the blood contained exceptionally high levels of antibody of that particular type and significant but lesser amounts of the other two antibodies.

In a small group of persons whose bloods showed no polio antibodies at all, one injection of an experimental vaccine produced little or no detectable antibody; however, when a second injection of vaccine was given several weeks after the first, there occurred a demonstrable increase in the level of antibodies.

This, Dr. Salk referred to as the "booster" phenomenon — a well recognized principle in immunology applicable to many diseases — in which the first injection of a vaccine acts as an "alert" preparing the body by a small, trial-run of antibody, and the second injection actually "ringing the alarm," thus setting the body into full scale antibody production.

Proof of the operation of the booster principle in polio, as well as other evidence from this and other studies, make it clear, Dr. Salk said, that "poliomyelitis viruses abide by the well established laws of immunology." The data indicate, he went on, that although it may be easier to induce antibody formation in persons who already have antibody to at least one polio virus type, even those who have no previous antibody can form these protective substances with the proper vaccine stimulation.

Dr. Salk emphasized that these are continuing studies and that there are still many unanswered questions before it can be said that a practical vaccine has been developed.

"The studies are progressing satisfactorily; there have been no set-backs nor anything but revelations that shed more light on the course ahead," Dr. Salk concluded.

Present studies will continue on an expanded scale in the same local area, with reports being made as more data becomes available.

In discussing the possibilities of a future mass trial of a polio vaccine to determine how effective it may be in protecting against the naturally

occurring disease, Dr. Salk pointed out that there is a choice of methods:

One would be a controlled study involving the injection of alternate children with either a polio vaccine or another biological preparation such as a vaccine for another disease or even an innocuous salt solution. This method would permit a comparison of two strictly comparable groups.

Another possibility would be to inject a polio vaccine into children of a narrowly restricted age group — preferably the one in which the highest incidence of the disease usually occurs. The effectiveness of the vaccine would be determined by comparing the incidence of paralytic polio in the vaccinated children with the incidence in younger or older brothers and sisters, other children in the same school or community, children of the same age in other communities, and the polio experience in previous years of children in the same age group as the vaccinated ones.

Plans Made for Polio Vaccine Tests

Plans are now being made by the National Foundation for Infantile Paralysis for large scale testing of a polio vaccine to determine how effective it is in protecting against the disease under natural conditions of exposure it was announced today by Basil O'Connor, president.

The head of the National Foundation made his statement following the report on polio vaccine studies presented by Dr. Jonas E. Salk of the University of Pittsburgh at the annual meeting in Miami of the American Academy of Pediatrics. The Pittsburgh scientist's investigation are being supported with March of Dimes funds.

"I know the American people, whose support over the years has made all of this possible, are as gratified as we are with the promising progress in the fight against polio," Mr. O'Connor said. "And on the basis of Dr. Salk's recent findings, as well as on the studies of other scientists, the National Foundation is now formulating definitive plans for an evaluation of the effectiveness of a polio vaccine."

As soon as plans are complete, the details of the vaccine validity study will be made known. It is hoped that the study can get underway in the early part of next year. In general, such a validity test would entail the vaccination of hundreds of thousands of children during a non-epidemic period and then observing what protection resulted, when outbreaks of polio next visited their communities.

Mr. O'Connor pointed out that since 1949 remarkable progress had taken place in polio research. That year witnessed the removal of a major obstacle which was blocking the efforts of scientists in developing a means of preventing polio. Another scientist supported by the National Foundation — Dr. John F. Enders of Harvard and the Children's Hospital in Boston — accomplished this with the discovery of a method for growing polio virus in test-tube cultures of non-nervous tissue.

In less than two years this was followed by another achievement — the identification of three types of polio virus capable of causing the human disease. That knowledge resulted from the cooperative efforts of teams of scientists from the universities of Southern California, Utah, Kansas, and Pittsburgh. These two major discoveries — both of which were made possible by the American public's support — are fundamentally responsible for the recent rapid advances in the fight against infaltile paralysis. Mr. O'Connor said.

Phiiip E. Ryan, Executive Director National Health Council

Dr. A. W. Dent, President of the National Health Council, announced yesterday the appointment of Philip E. Ryan as Executive Director of the Council to succeed Dr. Thomas D. Dublin, who has resigned to accept a position with the National Foundation for Infantile Paralysis.

The National Health Council, established in 1921 to promote the health of the people of the country through its members, now has a membership of 40 national official and voluntary agencies.

Mr. Ryan, who has been serving as Special Assistant to the Director of the National Social Welfare Assembly, recently returned from Korea where he was an adviser on health, welfare, and education in the civil assistance program of the U.S. Army. He was formerly Chief of Mission for the international Refugee Organization in the U.S. Zone of Germany.

Mr. Ryan directed the wartime foreign war relief activities of the American National Red Cross, making a number of trips to Europe and the Far East. Before joining the Red Cross in 1939, he had been executive Secretary of the National Committee on Care of Transient and Homeless.

A graduate of Fordham and Notre Dame Universities, Mr. Ryan has also done graduate work at the New York School of Social Work. He is the author of several social work publications including "Migration and Social Welfare," published by the Russell Sage Foundation. Mr. Ryan has made his home in Arlington, Va., for the past eight years.

WORLD CONFEDERATION FOR PHYSICAL THERAPY *News*

The First Congress of the World Confederation For Physical Therapy was an unforgettable experience. The opening session with its solemnity; the lighting of the Congress symbol, a revolving globe; the addresses by the distinguished physicians, and the Minister of Health of Great Britain made us aware of the stature and scope of our profession and our responsibilities as physical therapists to our patients.

The hospitality extended to us by the Chartered Society of Physiotherapy was tremendous and warm. We were as guests in their home as Professor Whillis, Chairman of the Council, so aptly stated it, and they truly made us feel at home. All of us will be ever grateful to the Chartered Society for making this Congress the success it was. It required the time, imagination and work of many many people during the past two years. Through the leadership of Professor Whillis, Chairman of the Council of the Chartered Society of Physiotherapists and Chairman of the Congress Committee, committees were formed and funds were raised. The branches and individual members of the Society contributed money and many hours of work. Miss M. J. Neilson, who is Secretary of the Council and Honorable Secretary-Treasurer of the World Confederation For Physical Therapy was the very able Field General. The entire staff of the Society's office worked far above the call of duty to keep the wheels rolling without ever the tiniest squeak. Those of us who have been associated with the management of conferences and conventions looked on in admiration.

The World Confederation For Physical Therapy is indeed now a reality and firmly established. It was most gratifying to me and to the entire Executive Committee to see the enthusiasm for and to note the understanding of this young international organization. Our responsibilities to patients beyond our national borders was fully recognized. Countries in which there is little or only the beginning of physical therapy need help in developing services. The member organizations became more firmly convinced of responsibilities within their borders such as to maintain the highest quality of service to the patient and to provide enough physical therapists to do it. Each found some solace in the fact that they were not the only ones having problems. In fact they were surprisingly similar. One of the highlights to me was the day on which the entire program was devoted to papers by physical therapists. They were uniformly excellent in content and in presentation. All were given in English. One could not help but be proud of each and every one.

The Chartered Society recognizing that history was being made arranged for the Congress to be filmed by the cameraman who took the film for "A Queen is Crowned." The Society very generously underwrote the cost of this project and are making copies available at only the cost of duplicating and shipping. All the member organizations indicated that they would be interested in having a copy. This will bring the Congress to physical therapists everywhere. They will see Central Hall, demonstrations in the different hospitals, shots of some of the social events and hear parts of some of the speeches. This is truly a great gift of the Society.

The World Confederation is looking forward with much pleasure to the Second International Congress which will be held in 1956 in the United States with American Physical Therapy Association as host. Plans are already being made, and savings accounts started. As the First Congress ended and the symbol of the Congress, the lighted globe, was dimmed and stopped revolving, the thoughts of all were projected to 1956 when we would meet again.

MILDRED ELSON, *President*
World Confederation For Physical Therapy

Note. Although it was stated in the October issue that there would be a full report in this issue, the deadline was too close for your delegate, Lt. Col. Harriet Lee, to prepare it since her return home. It will appear together with pictures when they are received.

Schools of Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Graduates of these schools are eligible for membership in the American Physical Therapy Association.

California

School of Physical Therapy
Childrens Hospital Society
4614 Sunset Blvd., Los Angeles 27
(Univ. of California, Los Angeles)

School of Physical Therapy
College of Medical Evangelists
White Memorial Hospital
Boyle & Michigan Aves.
Los Angeles 33

Department of Physical Therapy
University of Southern California
University Park
Los Angeles 7

Curriculum in Physical Therapy
School of Medicine
University of California
3rd & Parnassus
San Francisco 22

Division of Physical Therapy
Stanford University
Stanford

Colorado

School of Physical Therapy
Department of Medicine
University of Colorado
4200 East Ninth Ave.
Denver 7

Connecticut

School of Physical Therapy
University of Connecticut
Box U 101
Storrs

Illinois

School of Physical Therapy
The Medical School, Northwestern University
303 East Chicago Ave.
Chicago 11

Iowa

†Department of Physical Therapy
State University of Iowa
University Hospitals
Iowa City

Kansas

School of Physical Therapy
University of Kansas — Medical Center
Kansas City 3

Louisiana

†Charity Hospital School of Physical Therapy
1532 Tulane Ave.
New Orleans

Massachusetts

*Course in Physical Therapy
Bouve-Boston School
Medford 55
(Tufts College, Medford)

*Program in Physical Therapy
Simmons College
Children's Medical Center
300 Longwood Ave.
Boston 15

Department of Physical Therapy
Boston University
Sargent College of Physical Education
6 Everett St.
Cambridge 38

Michigan

Curriculum in Physical Therapy
Dept. of Physical Medicine & Rehabilitation
University Hospital
University of Michigan
1313 East Ann St.
Ann Arbor

Minnesota

Course in Physical Medicine
The Medical School
University of Minnesota
Minneapolis 14

†School of Physical Therapy
Mayo Clinic
Rochester

Missouri

Department of Physical Therapy
Division of Auxiliary Medical Services
School of Medicine
Washington University
Barnes Hospital
600 S. Kingshighway
St. Louis 10

Division of Health & Hospital Services
St. Louis University School of Nursing
1402 South Grand Blvd.
St. Louis 4

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* Only women accepted.
† Only certificate awarded.

New York

Physical Therapy School
Albany Hospital
New Scotland Ave.
Albany 1
(Russell Sage College, Troy)

Program in Physical Therapy
University of Buffalo
2183 Main St.
Buffalo 14

Division of Physical Therapy
College of Physicians & Surgeons
Columbia University
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* Only women accepted.
† Only certificate awarded.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Coming Meetings

The American Occupational Therapy Association will hold its Thirty-Sixth Annual Conference, November 13 to 20, 1953 at the Shamrock Hotel, Houston, Texas.

The 1953 Annual Convention of the National Society for Crippled Children and Adults will be held in Chicago from November 12 to 14.

Abstracts

The Major Determinants in Normal and Pathological Gait

J. B. M. Saunders, Verne T. Inman, and Howard D. Eberhart, J. BONE & JOINT SURG., 35-A:543-558, July, 1953.

Human locomotion is described as the translation of the body from one point to another by means of a bipedal gait and represents quite a complex phenomena if an analysis of the entire cycle of events were to be made. This article, therefore, limits itself to a consideration of what is called the primary determinants of human locomotion and the relationship of these determinants to pathological gait. It is hoped that the orthopedic surgeon may appreciate these fundamentals and be able to analyze disorders of locomotion with greater precision and thus cope with these disorders more effectively.

A variety of technics was used to obtain the data for the present analysis of the fundamental determinants of gait since the study of locomotion involves the recording and measurement of magnitudes, direction, rates of change of translation, rotations, and forces occurring in the body with respect to the three coordinate axes in space. The data presented are for level walking at the cadence normal to the subject under study.

The center of gravity is used as a point of reference since the displacement pattern of the center of gravity is regarded as constituting the summation of all forces and motions acting upon and concerned with the translation of the body from one point to another during locomotion. In the adult male and female, the center of gravity is estimated to lie in the mid-line and approximately fifty-five per cent of the individual's stature from the ground up. With reference to the vertebral column, the center of gravity may be said to lie in a position just anterior to the second sacral vertebra.

In normal level walking, it is noted that the center of gravity will be displaced in both the vertical and horizontal planes approximately one and eight-tenths inches and one and three-fourths inches respectively. The line of progression of the center of gravity in both the vertical and horizontal planes represents a sinusoidal curve.

Translation of the human body in a forward direction would be most economical, with regard to energy expenditure, if the center of gravity traveled a straight line, but this is quite impossible and, therefore, the next most economical method would be that in which the forward translation of the human body traveled a pathway of low amplitude in which the deflections are gradual.

The first determinant of gait is that of pelvic rotation. In normal level walking, the pelvis rotates alternately to the right and left of the line of progression at an average magnitude of four degrees to each side of the center line. The significance of pelvic rotation and the other determinants of gait are thoroughly discussed with regard to energy conservation in human locomotion and their relationships to pathological gait.

The second determinant of gait is pelvic tilt. In normal locomotion the pelvis tilts downward relative to the horizontal plane on the side opposite to that of the weight-bearing leg with the average angular displacement being approximately five degrees.

The third determinant of gait is that of knee flexion in the stance phase in which the average magnitude is about fifteen degrees. The three determinants of gait thus far mentioned all act in the same direction by flattening the arc through which the center of gravity of the body is translated.

The fourth and fifth determinants of gait relate to the foot and knee mechanisms in which we are concerned with the smoothing out of the pathway of the center of gravity in the line of progression at the point of intersection of its arcs.

The sixth determinant of gait is that of lateral displacement of the pelvis.

Before considering an evaluation of pathological gait, a little concerning the energy levels during locomotion should be understood. The energy level of the body is the sum of its potential and kinetic energies. The energy levels of the different segments of the lower extremity are not constant, the difference being a measure of the work done by the muscles at the joints. The end result is a forward displacement of the body in which a large portion of the energy is dissipated in the rotations of the segments. These effects are referred to as the output and input of energy respectively. The energy expended during straight and level walking at a constant cadence is divided approximately equally between the rhythmic oscillations of the legs and the elevation and depression of the center of gravity of the body.

With the loss of one of the major determinants as a result of injury or disease, the remaining mechanisms will compensate within their ability to produce an over-all displacement of the center of gravity of the body through a sinusoidal path of low amplitude, since this requires the minimal expenditure of energy. In the evaluation of the pathologic gait, thorough discussion is given to the compensatory actions of the remaining determinants when one of the determinants of gait are affected as a result of arthrodesis of the hip or knee, amputation or any other immobilizing procedure which may affect one of the determinants of gait. Experience has shown that where two joints are affected, the energy cost of locomotion becomes threefold producing quite a drain on the cardiovascular system with a resulting shortening of life expectancy. It is almost impossible for the remaining determinants of gait to compensate in such a case. Essentially, pathologic gait may be viewed as an attempt to preserve as low a level of energy consumption as possible by exaggeration of the motions at unaffected levels.

Speech and Voice Therapy in Otolaryngology

Paul J. Moses, EYE, EAR, NOSE & THROAT MONTHLY, XXXII: 367-375, July 1953.

The ideal speech and voice specialist should be a combination otolaryngologist, psychiatrist, psychologist, speech teacher, singing master, and experimental phonetician. The physician who specializes in this field must acquire some knowledge of these subjects in his training.

This article does not presume to describe diagnostic and therapeutic technics in voice and speech in detail. It is intended merely to stimulate interest in a field which, for the sake of better medical practice, should assume its rightful place in the training programs for ear, nose, and throat departments.

In the United States speech and voice therapy is mostly in the hands of nonmedical "experts." It has been shown that this field presents a great variety of medical problems and that differential diagnosis is often so difficult that it cannot be left to nonmedical persons, no matter how competent in their own right.

On the other hand, the laryngologist must acquire the necessary knowledge to deal with these problems in all their aspects; otherwise, he will not be able to answer the needs of a large percentage of his patients.

Improved Type of Hip-Disarticulation Prosthesis

Charles G. Hutter, J. BONE & JOINT SURG., 35-A:745-748, July, 1953.

A description is given of an improved type of prosthesis for the hip-disarticulation amputation which has been found much more satisfactory and comfortable than the tilting-table type of prosthesis normally considered the conventional prosthesis for this type of amputation. Eight hip-disarticulation amputees have been fitted with such an improved type of prosthesis with great success.

The limb has been termed a "saucer" type of above-the-knee prosthesis because of the fact that the body weight is borne on top of the limb in a concavity which resembles a saucer in shape and size. The ischial tuberosity fits into the concavity and supports the body weight in such a manner as if the amputee were sitting without having the prosthesis on. The limb is secured to the amputee by means of a pelvic belt which eliminates the need of other types of suspension such as shoulder straps and the bulky apparatus of the tilting-table type of prosthesis.

Certain adaptations are incorporated in the fabrication of this type of prosthesis to ensure more successful functioning. It has been found that when a friction type of knee joint was used, it was necessary to use a spring lock on the pelvic joint, but in some cases a free joint was used at the pelvic joint and in these cases a knee joint lock had to be incorporated in the limb. The knee lock operates as follows: the knee locks as the prosthetic heel strikes the floor and, as the amputee carries the body weight forward over the toe and ready for the push-off phase of ambulation, the knee lock is released and flexion of the knee is permitted. The stability of the knee joint in the prosthesis is important to the amputee who lacks hip-joint control. In order to insure maximum control of the prosthesis with a free pelvic joint, it is necessary that the pelvic band fit quite securely about the pelvis and below the iliac crests.

The socket of the limb is made of willow wood and the concavity padded with a firm sponge rubber which in turn is covered with leather and the leather treated with nylon to prevent the absorption of perspiration.

An example of the practicality of the improved type of prosthesis over the tilting-table type of prosthesis is demonstrated in driving a car. The steering wheel of a car must fit between the legs which necessarily have to be in some degree of abduction. The tilting-table type of prosthesis limits abduction of the legs to a greater degree than is obtainable with the improved type of prosthesis, making the latter type of prosthesis more suitable for the person who drives a car.

Six of the eight patients who were fitted with the improved type of prosthesis had previously worn the tilting-table type of prosthesis and expressed complete satisfaction with the improved type of prosthesis because of the comfort afforded and greater ease of walking. Thus it is felt that the hip-disarticulation amputation is no longer an indication for the tilting-table type of prosthesis.

Psychodynamics and Treatment of Petit Mal in Children

Melitta Sperling, INTERNAT. J. PSYCHO-ANALYSIS, XXXIV (Part III: 248-252, 1953).

The case of a seven-and-a-half-year-old boy with petit mal has been presented in order to demonstrate the importance of exposing and managing unconscious destructive impulses and the unconscious conflict in the treatment of this condition.

The basic conflict in petit mal is seen as one between extreme passivity and extreme aggressivity. While this conflict in itself is not considered specific for petit mal, the attitude of the patient toward this conflict, in which either outcome is associated with death, seems to be a specific dynamic factor in this condition.

The mechanisms of defense which the patient adopts against these dangerous unconscious impulses and also against a threatening reality are considered the specific dynamic factor.

According to this concept petit mal is interpreted as an instant cutting off from functioning of those parts of the mind which serve the perception and execution of stimuli from within and without, because perception of certain stimuli would lead to an explosive reaction endangering the life of the patient and that of people in the environment.

The relation between petit mal and migraine is discussed.

The significance of environmental factors, particularly of the interrelated dynamics of the maternal attitudes and the child's responses, are demonstrated. This was done in the hope that a full recognition of the importance of changing such attitudes through therapy may prove an essential factor in the prevention of petit mal.

Progressive Neuropathic (Peroneal) Muscular Atrophy (Charcot-Marie-Tooth Disease)

Alf Brodal, Svein Böyesø, and Arne G. Frövig, ARCH. NEUROL. & PSYCHIAT., 70:1-29, July 1953.

The histological findings in 20 biopsy specimens of muscle from 14 patients with progressive neuropathic muscular atrophy of the Charcot-Marie-Tooth type are reported. Eight of the patients were re-examined clinically, after periods of up to 11 years.

Reasons are given for considering the clinical diagnosis certain in all cases, and the pedigree of two families are presented. The mode of inheritance appears to be purely dominant.

In early stages atrophy of muscle fibers in groups is typical. There are some increase in the hypolemmal nuclei and some increase in connective tissue, but less in adipose tissue. Some fibers are hypertrophic.

In disease of more than four years' duration atrophy of fibers in groups is still present, but less prominent. There are a greater increase in connective tissue and a definite increase in hypolemmal nuclei. Degenerative changes in the nuclei become conspicuous, as well as degeneration of sarcoplasm and disintegration of myofibrils. Structurally preserved but extremely atrophic muscle fibers may, however, be seen even in cases of long-standing disease. Histological details are illustrated by photomicrographs.

The histological findings are compared with those in amyotrophic lateral sclerosis and other progressive muscular atrophies due to diseases of peripheral motor neurons and with those occurring in peripheral nerve injuries in man and animals. It is concluded that the

muscular changes in the disease under consideration are due to a disorder of peripheral motor neurons.

It appears that the affected muscle fibers may either atrophy slowly and reach a very advanced degree of atrophy with preservation of their cross striations, or they may at a relatively early stage undergo degeneration. The occurrence of degenerative changes does not necessitate the assumption of factors other than denervation as responsible for the muscular changes.

The more frequent occurrence of degenerative changes in the muscle fibers and their nuclei in Charcot-Marie-Tooth atrophy than found in other muscular atrophies due to disease of peripheral motor neurons may be explained by the longer duration of the disease, time being available for the late stages of the process to develop.

Muscle biopsies on patients suspected of having the Charcot-Marie-Tooth type of atrophy may be of diagnostic value.

Diagnostic Importance of Café-au-lait Spot in Neurofibromatosis

Frank W. Crowe, and William J. Schull, ARCH. INT. MED., 91:758-766, June 1953.

The purpose of this paper is to indicate the frequency with which café-au-lait spots are to be found in normal unrelated persons, in persons with proved neurofibromatosis, and in the families of the latter.

There is no gross or histologic feature which distinguishes the macular pigmentation, commonly known as café-au-lait spots, found in von Recklinghausen's neurofibromatosis from that found in normal persons.

Dermatological examination of 6,853 institutionalized patients without cutaneous manifestations of neurofibromatosis revealed 10.1 per cent to have from one to five café-au-lait spots. This finding was comparable to that in a group of 1,331 college males.

Of 98 patients with proved neurofibromatosis, 89.8 per cent were found to have one or more café-au-lait spots. Marked central involvement, segmental distribution of the neurofibromata, or late age of onset, in the case of peripheral forms of the diseases, were more frequently observed among those persons having three or fewer café-au-lait spots than among the more pigmented persons.

A comparison of the number of café-au-lait spots in patients with neurofibromatosis revealed a statistically significant correlation between affected siblings. A comparable correlation was not obtained between parents and offspring.

Normal relatives of patients with proved neurofibromatosis demonstrated an incidence and distribution in the number of café-au-lait spots similar to that of unrelated normal persons.

A series of generalizations are proposed for applying these data to clinical cutaneous medicine.

The Recording Oscillometer in Orthopaedic Practice

Fremont A. Chandler and Philip H. Dickinson, J.A.M.A., 152:901-903, July 4, 1953.

A graphic method of recording extremity blood flow in 435 orthopedic conditions is described. Results of studies on patients with poliomyelitis, osteomyelitis, fractures, vascular disturbances and miscellaneous conditions are reported. The following conclusions are reached: 1. Patients with poliomyelitis show a decreased arterial circulation, which can be correlated, in most instances to the decrease in the muscle mass and length on the involved side. 2, Skin temperature does not correlate with the oscillometric findings in many cases. 3, Venous stasis results in increased arterial pulsations on the involved extremity. 4, The recording oscillometer is a useful instrument that warrants further study. 5, Clinical judgment should take precedence in arriving at decisions about treatment.

Venous Stasis and Bone Growth

Philip H. Dickinson, EXP. MED. SURG., 11:49-53, 1953.

During the past twenty years considerable interest has been shown by a multitude of authors in the problem of unequal leg length in the growing child. One group has attacked the problem by arresting the growth of the faster growing epiphysis. Another group has attempted to reach a solution by trying to stimulate the slower growing epiphysis.

The purpose of this paper is to report the effect of surgically induced venous stasis on the bone growth of eight weanling puppies.

An experiment to determine the result of surgically induced venous stasis in puppies is presented. Following the production of venous stasis, the animals are followed with teleroentgenograms, oscillometer readings, thermocouple readings, and venograms. Findings indicate that venous stasis does not produce increased bone growth in puppies.

Charcot's Spine, a Report of Two Cases

M. H. Tan, and C. M. Meng, CHINESE MED. J., 71:203-207, May-June 1953.

Charcot's spine is a rare disease; but the authors believe it is not as rare as is supposed, because proper diagnosis might not be made in certain cases. Case 1 presented in this paper shows that a tabetic patient may have Charcot's spine and yet have no symptoms referable to the spine. In this particular case an early diagnosis was not made before deformity of the spine was evident. It is there advisable to keep the possibility of Charcot's spine in mind when one deals with cases of tabes dorsalis. In Case 2, with diagnosis of Charcot's spine, spinal deformity was lacking as the vertebral bodies were not compressed.

In these two cases, the pathological changes shown had been rather advanced. Especially in Case 2 Charcot's arthropathy was also manifested in both knees and therefore operative treatment could not be considered. This also indicates that radiographic examination as an aid to early diagnosis is important in preventing complications and proper management of the case.

In Case 1 both the vertebral bodies and vertebral arches showed marked bony destruction and proliferation. In Case 2, aside from involvement of the vertebral arches and articular processes there was anterior slipping of the arches and articular processes of the lumbar spine from the first sacral vertebra, resulting in mild spondylolisthesis. On careful examination, however, one can also detect bony rarefaction in the body of the 5th lumbar vertebra. Hence it may be surmised that after a certain period or as a result of sustaining an acute trauma, such a vertebral body may become compressed and similar findings of marked body destruction and proliferation as those seen in Case 1 may later be present.

Finally, the existence of multiple Charcot's arthropathies in the same patient as in Case 2 is distinctly unusual.

Effects of Aging on Cerebral Circulation and Metabolism

P. Scheinberg, I. Blackburn, M. Rich, and M. Saslaw, ARCH. NEUROL. & PSYCHIAT., 70:77-85, July 1953.

Cerebral blood flow and metabolism were measured by the nitrous oxide method in 32 normal men between the ages of 38 and 79 years and the data compared with those obtained in previous similar studies on 19 normal subjects between the ages of 18 and 36 years.

There is a close statistical correlation between advancing age and decreasing cerebral blood flow and increasing cerebral vascular resistance. The reduction in cerebral blood flow and increase in cerebral vascular resistance are accelerated after middle age. Cerebral oxygen consumption remains fairly stable until after middle age, when it apparently begins to decrease with advancing age.

The reduction in cerebral blood flow and increase in cerebral vascular resistance are thought to be due to increased cerebral vascular tone and vascular sclerosis. Diminution in cerebral oxygen consumption is thought to result from impaired cellular function resulting from reduced blood flow.

In eight of the subjects inhalation of a mixture of 10 per cent CO_2 and 90 per cent O_2 resulted in apparent increases in cerebral blood flow of more than 100 per cent, indicating that the increased cerebral vascular resistance of the aged is not necessarily fixed.

Studies on the Aging Heart

Harvey Poliakoff, and Paul Kaufman ARCH. INT. MED., 91:767-722, June 1953.

In a study of 800 consecutive autopsies of patients over the age of 60 years, 5 per cent, or 40, were found who did not show any gross evidence of coronary arteriosclerosis, myocardial fibrosis, hypertrophy, or other heart disease. Neither did any of these patients present significant premortem clinical, anatomical, or functional defects on physical, roentgenological, or electrocardiographic examination.

The congruity of the data obtained by the different methods of examination is considered significant. Two conclusions can be drawn: 1. Even after the age of 60 most anatomically normal hearts are usually normal functionally too. 2. Clinical, roentgenological, and electrocardiographic methods of study, if critically appraised, usually give a fairly accurate differentiation between the "normal" and the "abnormal" heart in the aging person.

Working with Mentally Retarded People

Mary R. Hauser, AM. J. NURSING, 53:7:822-825, July 1953.

This article deals with the role of the nurse in the hospital, community, and school in the handling and understanding of mental retardation. The incidence of retardation is given and the three major categories of the mentally deficient are classified and defined as the feebleminded child, mentally handicapped, and the slow learning child.

Included are some of the personal qualifications necessary for the nurse in working with the mentally retarded, such as a basic knowledge of normal growth and development, the ability to work with the family, patience, and a thorough knowledge of sociology and psychology.

The article is concluded with a listing of hopeful aspects in the specific treatment that medical science can now offer the mental retarded person. Among these are special trade schools and psychological and educational research projects leading toward the preparation of efficient workers and citizens.

Quantitative Effects of Medicine and Surgical Treatment of Mitral Stenosis on Exercise Tolerance

Robert Bruce, M.D., and David L. Rogers, M.D., AM. J. MED., 15:1:35-49, July 1953.

This article deals with a study estimating the exercise tolerance of twenty patients with mitral stenosis. The study was made in order to evaluate the effects of medical and surgical treatment. The exercise stress was standardized by having the patients walk slowly on a motor-driven treadmill ergometer. The exercise tolerance was quantitated in terms of the physical fitness index.

Preoperative preparation, with particular reference to bedrest, as well as optimal regulation of digitalis, dietary intake of sodium and diuretics was found to be effective in eighteen of twenty patients.

Both the degree and rate of improvement in exercise tolerance were determined after mitral valve surgery. Although 70 per cent were improved clinically, the improvement was delayed in about one-half. The majority eventually demonstrated significant increments in exercise tolerance.

Continued postoperative follow-up tests revealed deterioration in seven of twenty patients, due to heart failure resulting from one or more variables.

Exercise tolerance tests are an important adjunct to the clinical evaluation of patients with mitral stenosis in determining disability, minimal reserve for surgery, separating the effects of medical and surgical treatment, and revealing postoperative complications such as heart failure that may not be appreciated by clinical examination.

Muscle and Nerve

R. W. Gerard and R. E. Taylor, AM. J. MED., 15:83-98, July 1953.

By way of introduction to modern concepts of neuromuscular physiology in normal man and in relevant diseases, the authors contribute a general orientation for purposes of perspective. First considered are the motor unit as a whole and the effects of nerve degeneration. Then the manner and mechanisms of excitation and nerve impulse transmission are described. A description of myoneural junction follows. The paper concludes with a concise discussion of the physiology of muscle contraction. An extensive bibliography for further reading is appended.

Abstractors for November

Louis Cotovsky

Martha Wroe

Notice to Members

A directory of members will be printed in December. Any corrections of name or address must be received by the National Office by November 1, 1953, if they are to appear in the directory.

Book Reviews . . . . .

An Evaluation of Rehabilitation. *By Georgia F. McCoy, M.S., and Howard A. Rusk, M.D.* Rehabilitation Monograph 1. *A study of 476 cases, with a detailed follow-up study of 208 cases discharged in 1949 from the physical medicine and rehabilitation services of the New York University-Bellevue Medical Center. Paper; price $1.00. Pp. 87; 39 tables. Institute of Physical Medicine and Rehabilitation, New York, N. Y., 1952.*

A follow up study of patients discharged from a rehabilitation service is justifiably done by Dr. Howard Rusk and Miss Georgia McCoy of the IPMR of New York University-Bellevue Medical Center where so much pioneer work has been done in this area. It is a valuable addition to the field of rehabilitation and adds much light on the real effects of a total rehabilitation program.

The monograph is a statistical study of 476 cases discharged from the Physical Medicine and Rehabilitation services of the New York University-Bellevue Medical Center during the year 1949. The study was carried out one year following discharge in order to determine the effectiveness of this type of program and the resulting situation of the patients following rehabilitation services and care. A detailed evaluation of the physical, social, economic and educational status of these patients was made. The results are presented in numerous charts for the reader's study. Minimal written text is included. The reader is often left to make his own conclusions and deductions.

The monograph is not easily read and will be used as source of reference for a few, rather than as a text for many. It will be wisely studied by those who are interested in developing total rehabilitation services. The statistics show the improvement in physical and economic status and also point out that there "was a high rate of success in functional rehabilitation among this group but a lower rate of social rehabilitation." Such statements and the statistics to substantiate them indicate real need for further study in several directions before rehabilitation plans are successful in meeting patients' social and economic needs.

Some readers will criticise the inclusion of so much material of little actual significance but perhaps in the years ahead when other studies are carried out these figures will be valuable for comparisons. In some instances it was felt that there were too few cases in specific diagnostic groups—cerebral palsy, amputations, multiple sclerosis—to warrent the conclusions drawn by the reporters. In any respect it is a detailed analysis worthy of close study.

Man the Chemical Machine. *By Ernest Borek, Associate in Biological Chemistry, College of Physicians and Surgeons, Columbia University. Cloth; price $3.00. Pp. 219. Columbia University Press, New York, N. Y., 1952.*

The author of this interesting book evidently wished to present to the lay reader some of the biochemical discoveries which he has found fascinating and some of the thoughts which have crossed the minds of most biological scientists at one time or another. He does both tasks well, for his choice of anecdotes brings the history of biochemical discoveries to life and emphasizes the points he wishes to make. Since most of the stories of the discoveries are well-known, this reader was more interested in the author's choice of anecdotes to set forth certain ideas. Time and again he points out that in science no one is indispensible. Thus to the futile question "What if there had been no Banting?" (acclaimed as the discoverer of insulin), the author answers that "someone else would have extracted insulin successfully." He notes that genius in science is different from genius in the arts. "The scientist evolves in his own mind a pattern from phenomena which he and others have pried out from observations of our physical universe," and in science "genius accomplishes what lesser minds would have accomplished later," whereas in the arts genius accomplishes what no one else could accomplish.

The author has carefully illustrated the biochemical method and given some index to the tediousness of the tasks involved. He demonstrates that the biologist, whether he be physiologist or biochemist, cannot make sweeping generalizations and predictions the way physical scientists can and do. "Every now and then men well trained and accomplished in physics or chemistry, or just mathematics alone, become impatient with the slow fumbling ways of the biological scientists and decide to come to our rescue. . . . They come ready to polish up problems which have baffled biological scientists for generations but their contributions so far have not been impressive. . . . Often, the only reminders that physical scientists have been scrambling at the base of those forbidding peaks is the freshly carved nomenclature they invariably leave behind. Isotopes, tools of the physical chemists, solved one tiny bit of the mysteries of antibodies. But the tool was wielded by biochemists."

And so the author continues as he succinctly points out the time lag between the first clues and the final answers, the drudgery which frequently is summed up in a brief statement, the misguided ardor of the antivivisectionists, the necessity for more wisely spent appropriations for basic research, the necessity for the scientist to be permitted to follow any pathway no matter how devious it may seem, the need to guard against false optimism and false claim, and "the object of research is the advancement, not of the investigator, but of knowledge."

These are only a few of the matters that Borek considers in his book and each he illustrates with a well-chosen narrative taken from the fabulous storehouse of discoveries in the fields of enzymes, vitamins, sugars, isotopes, fats, proteins, blood, cell defenses, genes, and the brain. The book is well written, easily read and well worth the time of anyone who is interested in obtaining a more authoritative background in the history, technics, and philosophies of the biological scientists then can be acquired from reading articles which deal with the same discoveries in many present-day periodicals and magazines.

Collegiate Education for Nursing.

By Margaret Bridgman, Consultant in the Department of Baccalaureate and Higher Degree Programs, National League for Nursing, New York. First edition. Cloth binding; price $2.50. Pp. 205; illus. 12 (tables and charts). Russell Sage Foundation, New York, 1953.

The Russell Sage Foundation in 1949 made available a temporary

counseling service to colleges and universities that wished to improve their existing schools of nursing or to institute new nursing curricula. Dr. Margaret Bridgman, then dean of Skidmore College and active in the development of its Department of Nursing, was asked to give this service. She visited 80 colleges in all sections of the United States and also participated in many planning groups concerned in nursing education. Her broad experience in general education enabled her to view the problems of collegiate nursing education with a fresh and objective approach which enhanced her contribution to the universities that were privileged to have her guidance. The counseling visits made by Dr. Bridgman gave her a wealth of information and increased her insight in regard to the diversity of patterns of collegiate nursing education. This report is a thoughtful analysis based on her experience.

The book will be a valuable reference for university administrators, deans and faculties of schools of nursing, members of nursing and allied professions, health service agencies, and consumers of nursing service who are concerned with improvement in quantity and quality of nursing service to their communities and the advancement of nursing as a profession.

Only three of the seven chapters deal specifically with collegiate nursing education. The first three chapters which precede these provide essential background for understanding the complex issues and confused thinking which in many instances have resulted in unsound policies in collegiate nursing education which are not comparable in other fields of professional education.

The first chapter discusses the critical deficiency in nursing services from the standpoint of both quantity and quality. The reader may be surprised to find that the number of graduate nurses has more than doubled since 1920 despite the expansion of opportunities for women in other fields of employment. Dr. Bridgman discusses in detail the reasons for the increase in demand which has outstripped the increase in supply. She cites examples to show that the inadequacies in the preparation of many nurses for their expanded responsibilities is even more critical than the numerical shortage.

Because preparation for nursing began in hospitals and 95 per cent of students preparing for licensure as registered nurses now receive their basic training in hospital schools, it is appropriate that the second chapter is devoted to the hospital school. This chapter discusses the origin and history of the traditional pattern of training; the conflict in providing both education and service; the costs — actual and hidden — and who pays them; and the improvement, despite obstacles, which has come about through the energetic efforts of leaders in nursing. Charts are effective in clarifying the description of the curriculum of a typical hospital school and the classification and appraisal of schools.

Pertinent topics which are discussed in the third chapter dealing with relation of education to supply are: sources of supply; adaptation of education to potential personnel; nursing functions and financial policies in relation to education objectives.

The following three chapters which are devoted to collegiate nursing education will prove invaluable as a source of reference for faculty and administrators of collegiate schools of nursing. The patterns of baccalaureate curricula, approved and unapproved, are described and policies contrasted with those accepted in general higher education. The chapter which presents content of the baccalaureate curriculum shows the author's appreciation of the various factors which must be considered. She outlines sound general principles of education and suggests practical measures for working out an appropriate balance between general education and the nursing major and contributory sequences which will aid in the achievement of the objectives of the educational program. Because graduates of hospital schools of nursing in increasing numbers are seeking senior college education and others are interested in preparation in the nursing specialties it is appropriate that one chapter considers the needs of these groups.

The final chapter includes a succinct review of the problems presented and an analysis of ways in which these can be met. The author points out that "the failure of the educational system to provide opportunities and maintain standards for nursing education is a crucial deterrent to an adequate supply of qualified nursing personnel and therefore to the maintenance of health services at the level demanded by our stage of social development." She advocates the gradual integration of nursing education into the national system which now provides for other occupational groups post-high school education in institutions founded and supported for that purpose.

Those concerned in physical therapy education will find in this book many problems in nursing education which parallel those in their field. Preparation in physical therapy began by the apprenticeship method and is now coming under university administration. Common problems in this process are: establishment of sound administrative policies; qualified faculty; proportion in content in general education to that of the professional major; balance between physical and biological and the social sciences; organization of content in sequence which will fulfill the objectives of the educational program; close correlation of theory and clinical practice and emphasis on educational aspects rather than service needs in clinical practice; advantages and disadvantages of students sharing background courses with other college students; preparation for interdisciplinary team relationships. This book is strongly recommended as a reference for faculty and administrators of physical therapy schools.

Aids to Osteology. *By Nils L. Eckhoff, M.S. (Lond.), F.R.C.S., Surgeon, Guy's Hospital, etc., Late Senior Demonstrator of Anatomy, Guy's Hospital Medical School; Staff Examiner, University of London. Hard cover; price $2.00. Pp. 264 with 42 diagrams of bones. Bailliere, Tindall and Cox, London.*

The author's purpose is to present an accurate detailed written description and diagram of each of the bones of the Human Skeleton. The description includes surfaces, borders, bony landmarks, and soft tissue relationships to each bone. The diagrams are well labeled and show muscle attachments very plainly.

The book is divided into an introduction which is a good general description of bone; Section I, The Bones of the Upper Extremity; Section II, The Bones of the Lower Extremity; Section III, The Bones of the Spine and the Thorax; Section IV, The Bones of the Skull; Section V, The Skull as a Whole.

This book is an excellent and accurate coverage of osteology which would be of value in the study of human anatomy.

This Hospital Business of Ours.

By Raymond P. Sloan, Editor and Editorial Director, "The Modern Hospital Magazine." Under his di-

rection, the Trustee Forum of the Modern Hospital was inaugurated as a pioneering attempt to interpret hospital work to lay groups; member of Board of Managers of Memorial Center for Cancer and Allied Diseases of New York; Lecturer at School of Public Health, Columbia University; Director of Institute for Hospital Administrators sponsored by Colby Hospital and the Maine Hospital Association; author of book Hospital Color and Decoration; Vice-President of the Modern Hospital Publications Company. Cloth-bound; price $4.50. Pp. 331, G. P. Putnam's Sons, New York, N. Y. 1952.

The author by the very nature of his rich experience and background is eminently qualified to write this guidebook for hospital trustees, hospital workers, and laymen. It is in reality a condensed version of MacEachern's book on Hospital Organization and Management, which is considered the bible for students and hospital administrators throughout the country. This book under review might well serve as a "pony" reference book for hospital workers, both in the professional and non-medical areas. Considerable thought has gone into the compilation of the bibliography carried as a "Selected Reading List."

This Hospital Business of Ours apparently is written primarily for the information and guidance of lay trustees. Its language is interesting, understandable, and factual. There is no doubt left in the reader's mind that hospitals are "Big Business" and they exist only to serve the needs of the nation's sick and disabled. It is written in two sections — six chapters are devoted to "Some Facts and Figures," while eight chapters form Section 2 — "Ready for Trustee Action." The reader is led gently from the "Pest House Era" of hospital operation to the modern concept of hospitalization for which there is an ever increasing demand by informed citizenry. In this connection, the author has not overlooked a short discussion of the geriatrics problem and the increasing need for the planning of rehabilitation, and chronic beds in the general medical and surgical hospitals throughout the country. In fact, the Hospital Council of Greater New York recommends that twenty-five per cent of all general medical and surgical beds should be rehabilitation and chronic beds.

It occurs to the reviewer that this book might well become a *must* for administrators of both large and small hospitals, federal and private, as valuable orientation and indoctrination material for a series of inservice training discussions for trustees of nonprofit private hospitals, or Deans' Committees in the case of state and federal hospitals. The finesse and tact with which the author points out the qualifications of an administrator is enlightening. The long controversy of the man versus the woman administrator is well handled. There is a "gold mine" of case histories of do's and don'ts for the trustees and medical staff of hospitals presented in easy-to-take capsular doses of antidotes.

Those who read this book will be taken behind the scenes of the modern hospital, and in so doing will feel that they have actually shared with the administrator the innumerable problems and complexities with which he is confronted in the day to day operation.

Encyclopedia of Aberrations.

Edited by Edward Podolsky, M.D., State University of New York Medical College. Cloth binding; price $10.00. Pp. 550. Philosophical Library, New York, N. Y., 1953.

The Encyclopedia of Aberrations is exactly what its name implies — an encyclopedia of human aberrational behavior. It is printed in typical encyclopedia form: double column on a page, words to be defined or conditions to be discussed listed in alphabetical order from "Abasia" to "Zoosadism," and there is no formal bibliography, although references are presented in certain articles. If there were a criticism to be made it would be that the print is too small for easy readability; also the double columns tend to decrease the ease of reading. While this form may be an excellent one for short definitions, where there are lengthy papers to read one tends to lose the readability so necessary for understanding.

On the whole, the book presents a rather complete though one-sided viewpoint of aberrational behavior. As is stated in the foreword, it would be impossible to list discussions and terminology of all the various psychological schools of thought, so that the Freudian concept is presented, particularly in the large field of neuroses and related sexual aberrations. In some instances words are merely defined; in others papers pertaining to the subject are reprinted; and in others original papers are presented for thought and discussion. Papers are presented on such topics as: Chronic Alcoholism and the Etiology of Alcoholism; Factors in Disordered Thinking; Psychopathology of Hair-Plucking (Trichotillomania); Heroin Addiction in Adolescent Boys; Psychiatric Aspects of Malingering; Psychopathic Behavior Disorders in Children; and the Nature of the Schizophrenic Process.

It is difficult to evaluate the usefullness of a book of this type, but it would seem to be most helpful as a reference book. It is difficult also to visualize it as a basic textbook — particularly for physical therapy students, since their background in psychology must, of necessity, be considerably broader than this book would provide.

On the other hand, if this encyclopedia or one similar to it were to be used as a standard of definitions of aberrational behaviour, the communication and understanding of ideas would be somewhat simplified.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

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